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Institut und Poliklinik für Medizinische Psychologie

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# Cancer patients' relationship experiences and their modification in existential therapy: Impact on psychological adaptation at the end of life

Dissertation
zur Erlangung des Doctor of Philosophy (PhD)
an der Medizinischen Fakultät der
Universität Hamburg

vorgelegt von

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aus Zschopau

Hamburg 2021

**Angenommen von der**
**Medizinischen Fakultät der Universität Hamburg am: ________17.12.2021________**

**Veröffentlicht mit Genehmigung der**
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# Danksagung

Besonders danke ich den Patient:innen, die trotz ihrer schweren Erkrankung immer wieder bereit sind, an Studien teilzunehmen und ihr Erleben mit uns zu teilen.

Rebecca Philipp

Hamburg, Juli 2021

# Contents

## Summary

Patients' emotional and behavioral reactions to the numerous losses caused by cancer and its medical treatment have been studied using constructs of psychological and existential distress. Only little attention has been given to potentially adaptive processes, such as death acceptance and strong interpersonal relationships. Although relational aspects are prominent in constructs of existential distress, the role of patients' relationships is understudied, possibly due to the complexity of assessing subjective relational experiences. The paradigm of attachment theory has been proven useful in understanding interindividual differences in patients' reactions to cancer. Knowledge about underlying associations between attachment, perceived relatedness in interpersonal relationships, and psychological adaptation, especially in those patients who are particularly prone to feelings of isolation, may support the development of psychosocial interventions addressing patients' attachment and relational issues.

The research goals of this dissertation were (A) to investigate the value of death acceptance as an outcome of psychological adaptation, (B) to determine the impact of interpersonal relationships as operationalized by perceived relatedness on psychological adaptation, and (C) to identify the contribution of attachment avoidance as an underlying factor of psychological adaptation.

Adult cancer patients from two prospective studies were investigated. The first study had a longitudinal design and included 307 participants (n = 153 at 12-month follow-up) with mixed tumor diagnoses at early and advanced stages of their disease. The second study recruited 206 patients with advanced cancer and high distress to test the efficacy of a supportive-expressive psychotherapy in a randomized controlled trial at three- and six-month follow-up (n = 152, n = 125). Statistical analyses were based on empirical data from validated self-report questionnaires and included multinomial regression, multiple linear regression, and moderator regression analyses as well as mixed models and a mediated path model. Sessions of a patient's supportive-expressive therapy were analyzed qualitatively using the explication technique of content analysis.

The research goals were addressed in three quantitative and one qualitative publications. Publication 1 showed that mean death acceptance was moderate and did not change within one year. High death acceptance was predicted by older age, male gender, and a stage IV diagnosis. It was found to be a protective factor against high anxiety and high demoralization after one year. Publication 2 showed that mean perceived relatedness was high and significantly decreased within one year. Although it was a strong predictor for lower demoralization after one year across all tumor stages, there was no association between perceived relatedness and death acceptance. Publication 3 showed that mean attachment avoidance was high and did not change over the course of the psychotherapy. The relationship between higher death anxiety and lower demoralization and anxiety after six months was mediated by attachment avoidance. This effect was not found for the relationship between perceived relatedness and existential distress. Publication 4 illustrated these findings clinically. The avoidant pattern of a brain tumor patient during therapy was characterized by his need for self-reliance, emotional detachment, and withdrawal from interpersonal relationships. The term "avoidance" subsumed several defense mechanisms: denial of feelings of dependency, isolation of affect and displacement of overwhelming death-related distress, repression of feelings of guilt and shame, and projective identification to regulate interpersonal relationships. Yet, the patient benefited from the reliable therapeutic alliance, which helped him to express some of his emotional burden.

The present work showed that (A) death acceptance was of limited value as an outcome of psychological adaptation, (B) perceived relatedness had a strong predictive impact on psychological adaptation, and (C) attachment avoidance contributed to existential distress through its negative influence on relationship experiences at the end of life. These results stress the value of studying patients' attachment and relational issues separately and comprehensively. They also indicate that attachment is most likely an inherent characteristic that may serve either as a source of persistent vulnerability or as a protective factor against the distress caused by cancer, resulting in a limited advantage in explicitly targeting attachment security in psychosocial interventions. In health care settings, care providers may effectively work towards a (therapeutic) alliance, which takes into account patients' individual dependency needs. In order to improve the measurement of perceived relatedness, which was shown to be an important construct, instruments should reflect current positive and negative relational experiences as well as complex mutual processes. By supporting patients to expand their emotional flexibility, they may be enabled to express painful feelings. Thus, a joint mourning process acknowledging the losses associated with cancer may be initiated.

## Zusammenfassung

In Folge einer Krebserkrankung und deren Behandlung erleiden Patient:innen zahlreiche Verluste. Die damit verbundenen emotionalen Reaktionen und Verhaltensweisen werden mit Konstrukten psychischer und existenzieller Belastung erfasst. Potentiell adaptiven Prozessen, wie der Akzeptanz des Todes oder zwischenmenschlichen Beziehungen, wurde dabei bislang nur wenig Aufmerksamkeit geschenkt. Obwohl Konstrukte existenzieller Belastung einzelne Aspekte zwischenmenschlicher Beziehungen berücksichtigen, ist die Bedeutung der Beziehungserfahrungen von Patient:innen für die psychische Anpassung an eine fortgeschrittene Krebserkrankung nicht ausreichend erforscht. Dies liegt womöglich an der Komplexität der zu messenden subjektiven Erfahrungen. Das Paradigma der Bindungstheorie hat sich als hilfreich erwiesen, interindividuelle Unterschiede in den Reaktionen der Krebspatient:innen zu verstehen. Ein tieferes Verständnis der zugrundeliegenden Zusammenhänge zwischen Bindungsmustern, wahrgenommener Bezogenheit in zwischenmenschlichen Beziehungen und psychischer Anpassung kann die Entwicklung psychosozialer Interventionen fördern. Insbesondere Patient:innen, die zu Einsamkeitsgefühlen neigen, könnten von Interventionen, die Bindungs- und Beziehungsprobleme thematisieren, profitieren.

Die Forschungsziele dieser Dissertation waren (A) die Bedeutung von Todesakzeptanz als einen Endpunkt psychischer Anpassung zu untersuchen, (B) den Einfluss zwischenmenschlicher Beziehungen, operationalisiert durch wahrgenommene soziale Bezogenheit, auf die psychische Anpassung zu bestimmen und (C) den Beitrag von Bindungsvermeidung als zugrundeliegenden Faktor für die psychische Anpassung zu ermitteln.

In zwei prospektiven Studien wurden erwachsene Krebspatient:innen untersucht. Für die erste Längsschnittstudie wurden 307 Patient:innen (n = 153 zur Katamnese nach zwölf Monaten) mit verschiedenen Tumordiagnosen in frühen und fortgeschrittenen Stadien ihrer Erkrankung eingeschlossen. Für die zweite Studie wurden 206 psychisch hochbelastete Patient:innen mit einer fortgeschrittenen Krebserkrankung eingeschlossen, um in einer randomisiert-kontrollierten Studie die Wirksamkeit einer supportiv-expressiven Psychotherapie nach drei (n = 152) und nach sechs (n = 125) Monaten zu testen. Die empirischen Daten für die Auswertung wurden aus Selbsteinschätzungsfragebögen gewonnen. Zu den durchgeführten statistischen Analysen gehörten multinomiale, multiple lineare, und moderierte Regressionen sowie *Mixed Model*-Analysen und ein Pfadmodell mit Mediation. Die Therapiegespräche eines Patienten wurden qualitativ mit Hilfe der Explikationstechnik inhaltsanalytisch ausgewertet.

Die Forschungsziele wurden in drei quantitativen und einer qualitativen Publikation beantwortet. Publikation 1 zeigte, dass die mittlere Todesakzeptanz in der Stichprobe moderat war und sich innerhalb eines Jahres nicht veränderte. Ein höheres Ausmaß an Todesakzeptanz war signifikant mit höherem Alter, männlichem Geschlecht und einer Stadium IV-Erkrankung assoziiert. Es schützte gegen stärkere Angst und hohe Demoralisierung nach einem Jahr. Publikation 2 zeigte, dass die mittlere wahrgenommene soziale Bezogenheit in der Stichprobe hoch war und nach einem Jahr signifikant abgenommen hatte. Obwohl wahrgenommene soziale Bezogenheit ein starker Prädiktor für geringere Demoralisierung nach einem Jahr war, bestand kein Zusammenhang zwischen wahrgenommener sozialer Bezogenheit und Todesakzeptanz. Publikation 3 zeigte, dass die mittlere Bindungsvermeidung in der Stichprobe hoch und über den Verlauf der Psychotherapie stabil war. Bindungsvermeidung mediierte die Beziehung zwischen stärkerer Todesangst und niedrigerer Demoralisierung und Angst nach sechs Monaten. Dieser Zusammenhang bestand zwischen wahrgenommener sozialer Bezogenheit und existenzieller Belastung nicht. Publikation 4 illustrierte diese Ergebnisse klinisch. Das vermeidende Bindungsmuster eines Patienten mit Hirntumor war in der Therapie gekennzeichnet von dem Bedürfnis nach Eigenständigkeit, emotionaler Distanz und dem Rückzug aus Beziehungen. Der Begriff Bindungsvermeidung subsummierte mehrere Abwehrmechanismen: Verleugnung zur Abwehr von Gefühlen der Abhängigkeit, Affektisolation und Verschiebung zur Abwehr überwältigender todesbezogener Ängste, Verdrängung zur Abwehr von Schuld- und Schamgefühlen, projektive Identifikation zur Regulierung von Beziehungen. Dennoch profitierte der Patient von der zuverlässigen therapeutischen Beziehung, die ihm half, einen Teil seiner emotionalen Belastung auszudrücken.

Die Ergebnisse der vorliegenden Arbeit zeigen, dass (A) die Bedeutung von Todesakzeptanz als Endpunkt für psychische Anpassung eingeschränkt war, (B) wahrgenommene soziale Bezogenheit einen starken Einfluss auf die psychische Anpassung hatte, und (C) Bindungsvermeidung aufgrund ihres negativen Einflusses auf Beziehungserfahrungen zu existenzieller Belastung am Lebensende beitrug. Sie unterstreichen den Wert von bindungs- und beziehungsrelevanten Aspekten für das Verständnis psychischer Anpassung am Lebensende sowie die Notwendigkeit einer unabhängigen Erhebung dieser Aspekte. Weiter deuten die Ergebnisse daraufhin, dass Bindung eine inhärente Eigenschaft ist, die eine Quelle anhaltender Vulnerabilität oder ein Schutzfaktor vor den durch Krebs verursachten Belastungen sein kann. Damit ist jedoch der Nutzen, Bindungssicherheit in psychosozialen Interventionen direkt zu bearbeiten, eingeschränkt. Für die klinische Praxis bedeutet das, dass Behandler:innen versuchen sollten, eine (therapeutische) Beziehung aufzubauen, die das individuelle Bedürfnis ihrer Patient:innen nach Autonomie oder Abhängigkeit berücksichtigt. Zur Verbesserung der Erhebung des Konstrukts der wahrgenommenen sozialen Bezogenheit, dessen Wichtigkeit diese Arbeit untermauert, sollten Instrumente entwickelt werden, die positive und negative Erfahrungen sowie die wechselseitigen Prozesse in Beziehungen messen. Indem die emotionale Flexibilität der Patient:innen in der Behandlung gefördert wird, kann es gelingen, schmerzhafte Gefühle auszudrücken, krebsbedingte Verlusterfahrungen anzuerkennen und so einen gemeinsamen Trauerprozess zu initiieren.

## List of publications

The publications listed in Table 1 are part of this dissertation. An outline of each publication can be found in section 4. Full-text publications can be found in Appendix A (page 55 and following). Appendix B includes a complete list of publications (page 121 and following).

| | Impact factor (UKE scoring) |
|---|---|
| PUBLICATION 1 | 3.43 (13.51) |
| Philipp, R., Mehnert, A., Lo, C., Müller, V., Reck, M., & Vehling, S. (2019). Characterizing death acceptance among patients with cancer. *Psycho-Oncology*, *28*(4), 854–862. https://doi.org/10.1002/pon.5030 | |
| PUBLICATION 2 | 2.64 (12.01) |
| Philipp, R., Mehnert, A., Müller, V., Reck, M., & Vehling, S. (2020). Perceived relatedness, death acceptance, and demoralization in patients with cancer. *Supportive Care in Cancer*, *28*, 2693–2700. https://doi.org/10.1007/s00520-019-05088-2 | |
| PUBLICATION 3 | 3.006 (11.45) |
| Philipp, R., Mehnert-Theuerkauf, A., Koranyi, S., Härter, M., & Vehling, S. (2021). The role of attachment avoidance: A longitudinal mediation model predicting existential distress in patients with advanced cancer. *Psycho-Oncology.* Advance online publication. https://doi.org/10.1002/pon.5640 | |
| PUBLICATION 4 | Submitted for publication |
| Philipp, R., Krüger, A., Lindner, R., Mehnert-Theuerkauf, A., & Vehling, S. (2021). *Understanding avoidant attachment in a patient with terminal cancer: A psychoanalytical perspective.* [Manuscript submitted for publication]. Department of Medical Psychology, University Medical Center Hamburg-Eppendorf | |

*Table 1*. List of publications, which are part of this dissertation. UKE scoring: factor of evaluation applied by the University Medical Center Hamburg-Eppendorf (UKE) to evaluate publication activity; one third of the factor is assigned to the first author of a publication.

# 1 Background

Being diagnosed with cancer, patients face the possibility of numerous losses: loss of continuity, loss of meaning, loss of physical and cognitive functioning, loss of autonomy and control, and – in the event of a patient's death – loss of their loved ones. To be able to manage the potentially overwhelming distress associated with these losses, patients may fall back on the emotional and social support provided in their interpersonal relationships. But whereas some patients experience their relationships as supportive and helpful, others perceive them as an additional burden (Adams et al., 2015; Cook et al., 2018; Granek et al., 2019). Although there may be a variety of intraindividual reasons for these differences, studies in patients with cancer suggest an influence of patients' level of attachment insecurity (Hales, 2016; Luca et al., 2017; Nicholls et al., 2014; Tan et al., 2005). The following sections aim to summarize the current state of research in this context.

## 1.1 Psychological distress in patients with cancer

With one in two cancer patients experiencing substantial psychological distress (Carlson et al., 2019; Mehnert et al., 2018), the suffering in this population in light of their disease is profound. Accordingly, depressive and anxiety disorders are common among cancer patients, with 12-month prevalence rates over 10% for both disorders (Kuhnt et al., 2016; Nakash et al., 2014). However, evidence is mixed with regard to higher prevalence rates of mental disorders in these patients compared to the general population. This may be due to patients' distinct experiences over the course of their disease, which are characterized by the existential challenges of a life-threatening disease and cannot be fully captured by symptoms of mental disorders (Kissane, 2012; Vehling & Kissane, 2018).

### 1.1.1 Depression and anxiety

A study comparing participants who had received a cancer diagnosis in the past 12 months to participants who did not receive this diagnosis, reported that the first group was more likely to seek psychological treatment for mood (10% versus [vs] 7%) and anxiety (10% vs 6%) disorders (Mallet et al., 2018). Even after diagnosis, patients continue to be at high risk for symptoms of depression or anxiety caused by the stressors specific to different stages of the disease trajectory (Pitman et al., 2018). At least at one point throughout their disease, 7% to 13% of the patients were diagnosed with mood or depressive disorders; anxiety disorders were prevalent in 14% to 19% of the patients (Kuhnt et al., 2016; Nakash et al., 2014; Walker et al., 2014). Prevalence rates varied across cancer types, age, and gender. The consequences for the medical treatment in patients with mental comorbidities are severe. They are related to poor quality of life (Gonzalez-Saenz de Tejada et al., 2016; Niedzwiedz et al., 2019), limited pain management (Mercadante et al., 2021), and poor treatment adherence (Arrieta et al., 2013; DiMatteo & Croghan, 2000). Psychologically, they contribute to a desire of hastened death, thoughts of death, and suicidal ideation (Rodin et al., 2009; Wilson et al., 2016), making psychosocial support an essential prerequisite in the treatment of these patients.

### 1.1.2 Death-related distress and death acceptance

Patients with a terminal illness often experience higher psychological distress than those receiving curative treatment (Couper et al., 2010; Ferrandina et al., 2012). In addition to increased symptom burden, physical pain, and aggressive treatment, they are confronted with the reality of their own mortality. Fears of death and dying are crucial to the development of psychological distress (Granek et al., 2019; Tong et al., 2016). In this context, the term *death-related distress* summarizes the often overwhelming and diffuse fears associated with pain, suffering, and uncertainty at the end of life. (An et al., 2017). Research investigating patients with advanced cancer emphasizes these existential concerns, which have frequently been studied using the construct of *death anxiety* (Kissane, 2012; Lo, Hales et al., 2011).

In order to examine the clinical presentation of death anxiety, a qualitative study (Tong et al., 2016) identified patients with low, moderate, and high death anxiety based on their scores on the *Death and Dying Distress Scale* (DADDS; Krause et al., 2015) and analyzed the first sessions of their psychotherapy. The authors found that low death anxiety could be either interpreted as a state of readiness and acceptance or that the non-reflectiveness about death indicated a state of denial to protect the self. Moderate death anxiety was present in patients who had prior experiences with death, enabling them to reflect on death-related concerns and recognize the inevitable. High death anxiety was accompanied by overwhelming emotion, disappointment in intimate relationships, or the inability to make sense of living with an advanced disease. A number of quantitative studies underlines these results, especially with regard to the association between death anxiety, interpersonal relationships, and existential suffering (An et al., 2018; Bibi & Khalid, 2020; Eggen et al., 2020; Loughan et al., 2020). I will expand on these studies in the section on existential distress (section 1.1.3).

The adaptive element of death anxiety, which can be derived from the characterization of its low and moderate levels, is not specific to cancer. Acknowledging that the diagnosis of a severe illness stimulates thoughts about death and dying, a study investigating chronically ill patients (Nichols & Riegel, 2002) suggested that premature acceptance of death may prevent patients from seeking medical treatment and that reflecting on death-related concerns may increase awareness of one's own mortality, potentially leading to *death acceptance*. Although their conceptual proximity is well established in literature on death attitudes (Neimeyer et al., 2004; Ray & Najman, 1974; Wong, 2007), the relationship between death anxiety and death acceptance remains unclear, particularly when taking into account associated attitudes such as death denial (Ray & Najman, 1974) or neutral, approach, or escape death acceptance (Wong et al., 1994). Sometimes they are also regarded as opposites of one continuum, with death acceptance as the more favorable state (Pinquart et al., 2006).

Zimmermann (2012) analyzed the discourse of the denial-acceptance dichotomy in palliative care, in which denial has been understood as a "transitional" (p. 218) state, ideally followed by the acceptance of death and dying, an "integral" (p. 221) goal. This understanding is in line with other conceptualizations, describing death acceptance as a result of integrating the pain and despair over the finiteness of life with the sense of fulfillment and purpose of the life lived (Erikson, 1994; Pinquart et al., 2006; Reker, 1992). While the reduction of death anxiety to alleviate psychological distress at the end of life has been the goal of several meaning-based interventions (Grossman et al., 2018), death acceptance has not yet been systematically studied as an outcome of psychological adaptation at the end of life. One longitudinal study suggested a negative association between death acceptance and anxiety (Vehling et al., 2011). Cohen and Block (2004) gave an overview of the challenges that may emerge in the psychological treatment of terminal ill patients. According to their model, both the patient and the therapist, need to work through a number of issues – e. g., physical suffering, grief, depression, and relational issues on the patient's side; denial, boundaries, countertransference, and own death attitudes on the therapist's side – to reach some form of acceptance.

### 1.1.3 Existential distress

In the past twenty years, psycho-oncological research was successful in identifying and assessing existential challenges, specific for the intense and unique suffering in patients living through cancer and its medical treatment (Kissane, 2012; Robinson et al., 2015; Vehling & Kissane, 2018). Longitudinal data indicate that existential concerns increase in patients approaching death, maybe even more so than symptoms of depression or anxiety (Lichtenthal et al., 2009; Tang et al., 2016). The concept of *existential distress* as a heterogeneous, yet painful, psychological state captures the fundamentally challenging emotions, which emerge from the despair related to the premature end of the patient's life (Grech & Marks, 2017; Lo et al., 2016). They include fears about pain and suffering, potentially leading to a desire for hastened death; grief and regret about missed opportunities; feelings of profound loneliness and isolation, insufficiency, uncertainty, or being a burden as well as changes in identity (Figure 1). Following, I will describe two of the constructs constituting existential distress that are relevant to the research goals of this dissertation.

*Demoralization* describes the severe loss of morale due to the hopelessness and futility attributed to a terminal situation. Loss of meaning and purpose, uncertainty, incapacity to cope and, thus, sense of failure and feelings of worthlessness are common experiences in this context (Vehling & Kissane, 2018). The construct was first described by David Kissane (2001) and has recently been studied with regard to its added value as a diagnostic category alongside mental disorders, such as depression and adjustment disorder (Bobevski et al., 2018; Kissane et al., 2017). Prevalence rates range from 20% to 30% in a systematic review of demoralization in cancer patients (Robinson et al., 2015). In a mediational model with depression, loss of meaning and purpose mediated the relationship between quality of life and the desire for hastened death (Robinson et al., 2017). Correlational studies showed significant positive associations of demoralization with depression and suicidal ideation, stressing its clinical relevance (Fang et al., 2014; Li et al., 2017). While demoralized patients may be at higher risk for adjustment, depressive, and anxiety disorders, demoralization may also occur independent of mental disorders or cancer-related physical symptom burden (Caruso et al., 2017b; McFarland et al., 2019).

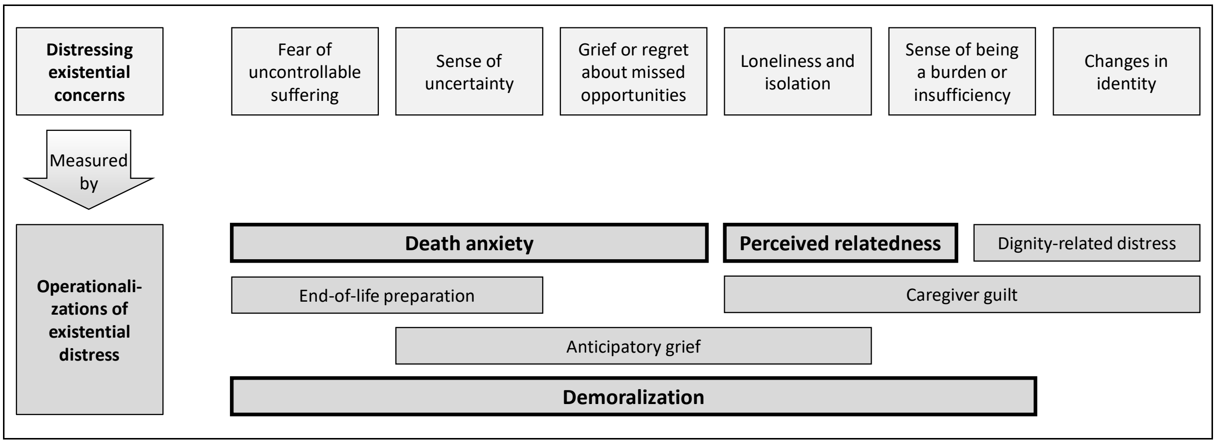


*Figure 1.* Adapted research model of existential distress of patients and caregivers in life-threatening illness. Constructs investigated as part of this dissertation are highlighted in bold. Figure adapted from Philipp, Kalender et al., 2021.

As stated previously (section 1.1.2), the construct of *death anxiety* captures the fears associated with death and dying in terminally ill patients. It also includes concerns regarding the inability to complete one's life plans and concerns about interpersonal relationships (An et al., 2018; Granek et al., 2019). In patients with advanced cancer, such concerns were reported by 28% to 80% of the patients (Bibi & Khalid, 2020; Krause et al., 2015; Lo, Hales et al., 2011). A network analysis examined the interconnectivity of these concerns as measured by the DADDS (Vehling et al., 2017). Results showed that centering around patients' concern of running out of time, the network could be divided in four quadrants: (1) past regrets and unfinished business, with the most frequent concern being not having done all the things they wanted (45%); (2) uncertain future near the end of life, with the most frequent concern being one's own death and dying (50%); (3) prolonged, painful death and associated dependency in relationships, with the most frequent concern being the impact of one's death on loved ones (65%); and (4) unpreparedness for a soon and unexpected death, with the most frequent concern being death happening soon (34%). Cross-cultural findings underline the universality, yet also the complexity and individuality of patients' experience with death anxiety due to the sudden loss of continuity. In a systematic review and meta-analysis, Soleimani (2020) concluded that death anxiety in study samples across North America, Asia, and Europe was moderate and highest for younger and female patients. Although death anxiety was not measured with the DADDS, regret with regard to one's past and future as well as fear of a painful death were prevalent.

In cross-sectional studies, death anxiety was related to higher levels of demoralization (An et al., 2018; Eggen et al., 2020); and higher anxiety but not depression predicted higher death-related distress (Loughan et al., 2020). Furthermore, there is some evidence that existential distress may interfere with prognostic awareness and discussing their end-of-life wishes (Brown et al., 2014; Tang et al., 2016; Wentlandt et al., 2012). Moreover, the relational concerns included in the constructs of demoralization and death anxiety indicate a significant impact of interpersonal relationships when coping with existential distress. Despite findings showing that a lack of social relatedness or social support was associated with higher demoralization (An et al., 2018), hopelessness (Applebaum et al., 2014), or spiritual well-being (Lo, Zimmermann et al., 2011), a possible protective effect of interpersonal relationships has not yet been studied systematically. Results were either reported from cross-sectional studies (An et al., 2018; Applebaum et al., 2014; Lo, Zimmermann et al., 2011) or sample sizes were too small to allow for reliable conclusions (Bibi & Khalid, 2020).

## 1.2 Association between psychological distress and patients' interpersonal relationships

Coping with psychological and existential distress, patients may find support in their interpersonal relationships. However, literature does not indicate a solely positive impact of relationships on patients' well-being. It rather points towards complex interdependencies between the emotional and social support available to the patient, the patient's individual needs, and the patient's perceptions of the support available and the person offering it (Caruso et al., 2017a; Cook et al., 2018; Lo et al., 2013). Especially patients' loss of autonomy and changes in identity put an additional strain on patients' relationships with close others as well as with their healthcare providers (Mah, 2019; Manne et al., 2015; Quintero Garzón et al., 2018).

### 1.2.1 Perceived burdensomeness

Loss of dignity is another construct in existential distress research (Figure 1) closely linked to patients' interpersonal relationships and a source for distress in about one fifth of the patients (Bovero et al., 2018; Chochinov et al., 2007; Philipp et al., 2016). Interviewing patients with terminal cancer, Chochinov and colleagues (2002) identified experiences in interpersonal relationships as one of the constituting factors of dignity. In their empirical model, relational concerns are represented in each of the three categories: the extent to which a patient has to rely on others, cognitively and physically *(Illness-related concerns)*; continuity of self, role preservation, autonomy/control *(Dignity conserving repertoire)*; and privacy boundaries, social support *(Social dignity inventory)*. Further developing this model of dignity, van Gennip and colleagues (2013) put even more emphasis on patients' relationships with others. They suggested that illness-related concerns only affected loss of dignity through patients' perceptions of themselves and in their relationship with others *(individual, relational, societal self)*. One major concern in cancer patients is perceived burdensomeness, with 19% to 40% of the patients reporting moderate to extreme distress caused by feelings of being a burden to others (McPherson et al., 2007). Perceived burdensomeness was related to hopelessness, depression, anxiety, and a desire for hastened death and was a stronger predictor for such psychological distress than physical symptom burden (Chochinov et al., 2007; McPherson et al., 2007; Wilson et al., 2005; Wilson et al., 2016).

### 1.2.2 Perceived relatedness

In this context, mixed findings on the protective impact of interpersonal relationships on psychological adaptation in cancer patients may be easier to interpret. Overall, social support is positively associated with higher emotional and physical quality of life as well as lower anxiety and depression (Applebaum et al., 2014; Gonzalez-Saenz de Tejada et al., 2016; Jeong et al., 2016; Luszczynska et al., 2013). Yet, there is evidence indicating that the quality, rather than the quantity, of social support is crucial for these associations (Fong et al., 2017). Other studies concluded that the negative impact of social constraints or detrimental interactions on psychological adaptation was stronger than the protective effect of positive interactions on alleviating distress (Adams et al., 2015; Philipp et al., 2016). Thus, literature substantiates the assumption that relationship quality is a crucial factor in perceiving emotional and social support of others as helpful.

Following their diagnosis, patients may experience a sudden shift in the dynamics of their interpersonal relationships (Ussher et al., 2011). Feeling like a burden to others due to an increased dependency on their help may pose a threat to patients' integrity, particularly to those who value individualism and autonomy as integral parts of their identity (McPherson et al., 2007; Wilson et al., 2014). In a sample of palliative patients, well over 80% indicated that they felt no longer treated with respect or understanding, like a burden to others, like they had no control over their lives, like they no longer made a meaningful or lasting contribution, and like they were not worthwhile or valued (Chochinov et al., 2006, p.667). Although a qualitative study did report no major changes in the intimate relationships of head and neck cancer patients after diagnosis (Stenhammar et al., 2017), patients reported detrimental changes with regard to feeling patronized, being treated differently or with a lack of empathy. At the same time, their partners, friends, or family may have a difficult time adapting to the new situation. In semi-structured interviews, primary informal caregivers reported that they had to take over more responsibilities with regard to the medical and physical care of the patient, deferred own personal needs and other relationships, and had to cope with the patient's personality and mood changes, changes in communication as well as changes to sexuality and intimacy (Ussher et al., 2011).

Other than an increased potential for conflict in interpersonal relationships (Badr et al., 2016), the relational challenges after diagnosis and during cancer treatment may also promote a growth in emotional connectedness and relatedness between patients and their caregivers (Zhai et al., 2019; Zwahlen et al., 2010). Stenhammar and colleagues (2017) named stable relationships, engagement and openness for the new situation as well as sharing the burden and new perspectives as factors enabling patients to resume their relationships after treatment. Some patients described a deeper sense of togetherness and stronger relationships emerging from mutual conversations and care from a partner, who accepted the patient and by whom the patient still felt seen as a person. Caregivers also experienced relationship enhancement due to a new sense of closeness, love and intimacy (Ussher et al., 2011).

Despite the popularity of *social support* as a construct characterizing the availability of help as well as emotional and physical care in interpersonal relationships (Luszczynska et al., 2013), the described findings point towards the importance of recognizing the mutual and interdependent processes in relational systems (Lo et al., 2013; Pankrath et al., 2018). If patients and their partners succeed in acknowledging cancer as a joint experience, they may be able to preserve relatedness and emotional connectedness in their relationships throughout the disease trajectory (Hagedoorn et al., 2011; Illingworth et al., 2010). For the present work, I therefore propose the construct of *perceived relatedness* to operationalize cancer patients' feelings of contributing to their relationships meaningfully and being able to share their narratives with a receptive partner. In this context, strong perceived relatedness may enable patients to integrate different perspectives and better cope with the existential distress caused by their disease.

So far, relational concerns have mostly been investigated as aspects constituting other constructs of existential distress. Although some studies showed an impact of patients' concerns in interpersonal relationships on psychological adaptation (section 1.1.3), only few focused on the complexity of measuring and interpreting constructs similar to perceived relatedness (Badr et al., 2015; Lo et al., 2013). Hence, research studying distinct operationalizations of interpersonal relationships, such as perceived relatedness, is still scarce in patients with cancer.

## 1.3 Contribution of attachment insecurity to lack of perceived relatedness and psychological distress

However, the large proportion of patients feeling like a burden to others (sections 1.2.1, 1.2.2) indicates that a comprehensive sense of relatedness is a theoretical ideal, which most patients struggle with from day to day. While the disruption and ongoing uncertainty caused by cancer and its medical treatment are sources of severe distress for every patient, they differ in their capacity to draw from interpersonal relationships when coping with the disease.

### 1.3.1 Concepts of attachment insecurity

In the past two decades of psycho-oncological research, the paradigm of attachment theory has been frequently studied and described as an intraindividual motive for these differences (Bowlby, 1977; Hales, 2016; Milberg & Friedrichsen, 2017; Nissen, 2016). According to John Bowlby's concept, individual internal working models (*model of the self*, *model of others*) reflect early relationship experiences with one's primary objects and, thus, strongly influence one's beliefs about the availability and responsiveness of others, even later in life (Bowlby, 1973). In an extensive literature review (Bakermans-Kranenburg & van Ijzendoorn, 2009), synthesizing the data on attachment classifications as measured by the *Adult Attachment Interview* (AAI, George et al., 1984), the authors found prevalence rates of 56% *secure-autonomous*, 29% *insecure-dismissing*, 14% *insecure-preoccupied* attachment in non-clinical samples. Although another systematic review suggests a similar distribution of secure and insecure attachment in patients with cancer, this population is more likely to suffer from high psychological and existential distress (Nicholls et al., 2014). This corresponds with findings reporting that prevalence rates of secure and insecure attachment in a sample with palliative patients were comparable to those of mentally ill patients (Müller, 2018). The diagnosis of a life-threatening illness may reactivate early psychological conflicts (Erikson, 1994; Lo, 2018). To cope with associated losses and emerging fears, patients may show attachment behavior, which aims to restore proximity to an attachment figure and to regain a sense of security (Bowlby, 1960; Bretherton, 1992).

In addition to the categorical approach to classify attachment behaviors of the AAI (Main et al., 1985), adult attachment has been conceptualized on the dimensions *attachment anxiety* (i.e. fear of abandonment) and *attachment avoidance* (i.e. defensive independency), which are consistent with Bowlby's model of the self and model of others (Bartholomew, 1990; Griffin & Bartholomew, 1994; Hunter et al., 2016). Brennan and colleagues (1998) developed the *Experiences in Close Relationships Scale* (ECR) as the first self-report instrument incorporating all relevant conceptualizations of attachment. The ECR measures adult romantic attachment on the two subscales *Avoidance* and *Anxiety*. Later, Lo and colleagues (2009) modified and shortened the instrument for the use in patients with cancer (ECR-M16).

Figure 2 visualizes the different conceptualizations of adult attachment. Depending on high or low manifestations on each dimension, individuals can be characterized as securely or insecurely attached. This dissertation uses the dimensional approach to describe attachment insecurity because of its feasibility and value for quantitative research.

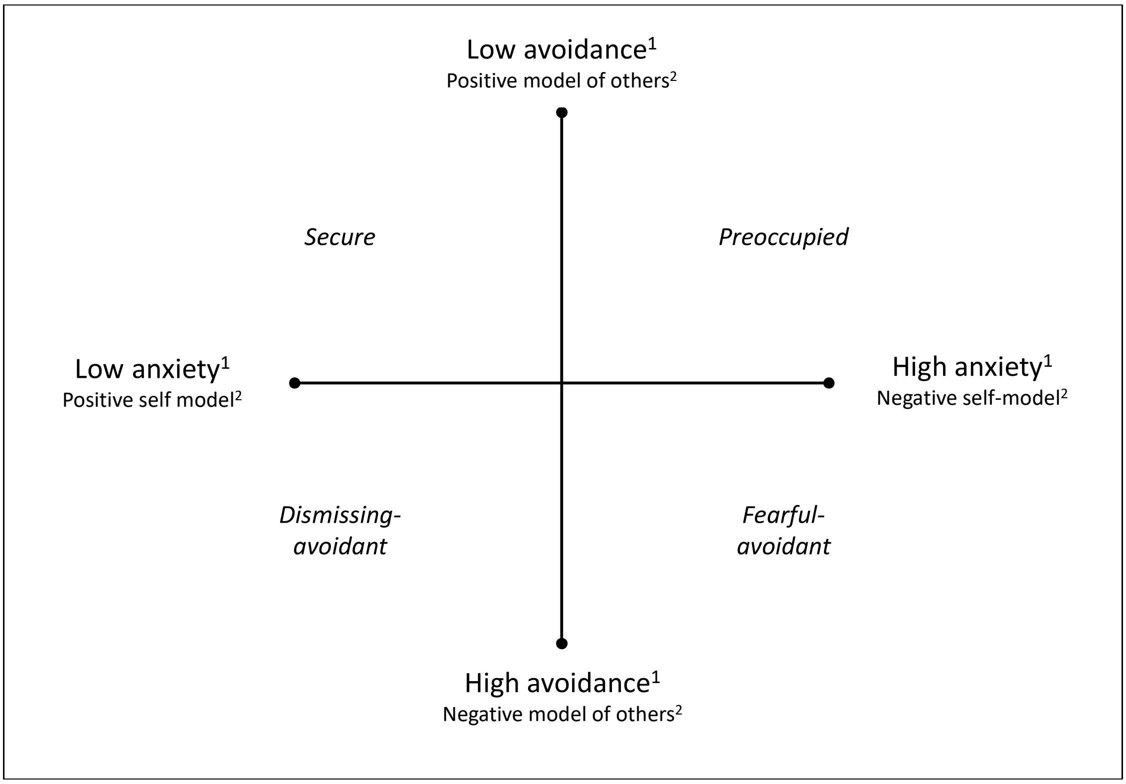


*Figure 2*. Dimensional and categorical conceptualizations of adult attachment according to Brennan et al., 1998[1] and Bartholomew, 1990[2]. Figure adapted from Bartholomew, 1990; Fraley & Shaver, 2000; Griffin & Bartholomew, 1994.

### 1.3.2 Attachment insecurity as a source of persistent vulnerability when coping with cancer

If an individual is provided with a *secure base* by their primary object, they are likely to develop a sense of basic trust in their early relationships. Otherwise – if the object reacts in an unresponsive, inconsistent, or insensitive manner to the individual's needs – the individual is likely to lack feelings of relatedness, emotional connectedness, and mutual support later on in life (Hunter et al., 2016; Müller, 2018). Hence, the individual's perception of interpersonal relationships will become a source of persistent vulnerability due to the established attachment avoidance or anxiety.

The maladaptive effect of attachment insecurity on psychological adaptation in patients with cancer has been demonstrated, mainly for attachment anxiety. Two longitudinal studies identified attachment anxiety as a risk factor for symptoms of depression and post-traumatic stress disorder (Adellund Holt et al., 2016; Lo et al., 2010), underlining previous findings in cross-sectional data (Rodin et al., 2007; Rodin et al., 2009). Attachment anxiety was also associated with the relational aspects of coping with cancer-related pain (Meredith, 2016). With regard to existential distress, higher attachment insecurity was related to higher demoralization as well as higher helplessness and hopelessness in cross-sectional studies (An et al., 2018; Cicero et al., 2009; Trejnowska et al., 2020; Vehling et al., 2019). Most of these relationships were determined by attachment anxiety. There was only one longitudinal study in patients with early breast cancer, in which attachment avoidance was found to predict symptoms of depression and anxiety (Lee et al., 2018).

Evidence indicates negative associations between attachment insecurity and couple communication, relatedness, relationship quality, dyadic coping and therefore psychological adaptation (Lai et al., 2017; Lo et al., 2013; Luca et al., 2017; Mah et al., 2020; Porter et al., 2012). However, findings were heterogeneous, possibly because of the variety of constructs used to assess patients' interpersonal relationships. A systematic review and meta-analysis synthesizing results of 13 primary studies assessing self-reported attachment insecurity (Nissen, 2016), found that both higher avoidance and higher anxiety were related to more symptoms of depression and anxiety, as well as lower social support. Yet, most of the included studies had cross-sectional designs and small sample sizes.

Due to the difficulties of patients with high attachment insecurity to experience supportive and meaningful interpersonal relationships, communication between patients and their medical caregivers is impaired. A literature review of attachment theory and the physician-patient interaction (Cassedy et al., 2015) summarized that patients with attachment insecurity are less likely to trust their physicians, to experience satisfaction with healthcare, and to seek appropriate treatment. Moreover, they may show lower treatment adherence. At the same time, physicians may react dismissive to these behaviors, if they perceive the patient as overly difficult. This, however, was also found to be closely linked to the physicians' own levels of attachment insecurity (Strauss & Brenk-Franz, 2016).

### 1.3.3 Clinical presentation of attachment behaviors in patients with cancer

The presented findings suggest significant clinical implications, for both the medical and psychosocial treatment of cancer patients with attachment insecurity. The following section will give a brief overview of attachment behaviors, which have been observed and documented by Tan and colleagues (2005) in a palliative care setting as well as by Hunter and Maunder (2016) in a general health care setting.

Patients with *secure attachment* are likely to have the capacity to regulate their own emotions and address their worries and concerns within their relationships. They communicate about their problems constructively and are able to understand others and their motives. Accordingly, they can collaborate with their health care providers in discussing treatment options and trust their professional opinion. Patients with *avoidant attachment* expect others to be unreliable, which is why they may experience a loss of autonomy or control as particularly disturbing. To avoid feelings of dependency, they withdraw from others and appear to be less distressed than patients with high attachment anxiety. Thinking that they can only trust themselves, they are unlikely to seek medical or psychological support, even when their health deteriorates. Because they fear becoming a burden to others, a desire for hastened death is prevalent in these patients. They may also elicit feelings of inadequacy or helplessness in their caregivers, due to their tendency to deny any need for support from others. Patients with *anxious attachment* tend to express their needs with intense emotion because of their belief that others will only respond to them if they realize the urgency of the problem. They are dependent on others to help them regulate their affectual states and may constantly try to establish a connection with those around them. In a medical setting, caregivers tend to be frustrated by the patients' frequent requests and need for reassurance, without considering the caregivers current state of mind. Because patients with anxious attachment feel easily rejected and are unlikely to accept responsibility for their own medical treatment, caregivers often withdraw from these patients. Patients with both *high attachment avoidance and high attachment anxiety* may have experienced early relationships, in which objects were inconsistent or unpredictable in the care they provided. This is reflected in behaviors characterized by high expressed emotions and mistrust because those patients perceive others as a constant threat. Correspondingly, they tend to present only in case of an emergency or they schedule regular medical appointments without showing up.

Despite these challenges in treating patients with insecure attachment, health care providers may maintain an understanding attitude towards their patients by knowing about typical attachment behaviors. Yet, without raising awareness for this topic, the daily routine in the medical treatment of cancer patients could interfere with establishing an environment, in which patients can feel more accepted. Limited time and staff shortages may even increase patients' fear to be confronted with an unreliable and unresponsive object. Research suggesting that patients attribute basic attachment functions to their health care providers offers insights about the possibilities of lowering insecure attachment behaviors in medical care settings, for example by fostering continuity of care (Maunder & Hunter, 2016; Strauss & Brenk-Franz, 2016).

## 1.4 Psychosocial interventions to alleviate psychological distress at the end of life

Addressing underlying maladaptive coping mechanisms by promoting existential well-being is one of the goals of psychosocial interventions treating patients with cancer. Several systematic reviews and meta-analyses synthesized the results of primary studies testing the effectiveness of mixed psychosocial interventions in reducing psychological distress, compared to active and non-active control conditions. For depression and anxiety, two studies reported small to moderate pooled effects in reducing these symptoms (Faller et al., 2013; Okuyama et al., 2017). Primary studies recruiting patients with high psychological distress found large effects. Summarizing the results of primary studies on existential interventions (e.g., meaning-centered psychotherapy, supportive-expressive therapy, dignity therapy, life review), Bauereiß and colleagues (2018) found small to moderate pooled effects for increased existential well-being, quality of life, and hope. Here, meta-analyses showed no pooled effects for the reduction of symptoms of depression and anxiety. In a smaller set of primary studies, Vos, Craig, and Cooper (2015) found an advantage for meaning and supportive-expressive therapies on depression and anxiety post-treatment. The systematic review by Grossman and colleagues (2018) focused solely on the impact of existential interventions on death anxiety in patients with advanced cancer. In a total of nine studies, most frequently discussed existential themes were maintaining and strengthening relationships, regaining a sense of control, sustaining a sense of continuity of self, decreasing sense of burden to others, generativity documents or discussions with close others, relief of concern around the dying process, and maintaining hope (Grossman et al., 2018, p. 180). About half of the studies included in this review reported a significant decrease in existential distress. There are few attachment-oriented psychosocial interventions but they were not able to show higher attachment security in patients receiving the intervention (Nicolaisen et al., 2018; Rodin et al., 2018).

## 2 Research objectives

Literature and empirical findings reflect the advances in psycho-oncological research with regard to the significance of interpersonal relationships and attachment insecurity to patients' psychological adaptation and existential distress. Depression, anxiety, and constructs of existential distress, such as demoralization and death anxiety are frequently studied as predictors or outcomes of psychological distress in patients with cancer. Death acceptance, however, is an understudied construct with regard to its potential for adaptive processes when coping with cancer and its value as a positive outcome for psychosocial interventions. Despite the presence of relational concerns in different constructs of existential distress, they have not been studied systematically with regard to their separate contribution to psychological adaptation in cancer patients. So far, interpersonal relationships have been assessed with a variety of constructs resulting in heterogeneous findings, often without acknowledging the interdependence between patients and their close others. Thus, the present work used the proposed construct of perceived relatedness to measure these relational experiences separately. Moreover, most of the findings were from cross-sectional and correlational studies, not allowing for any conclusions about the causal direction of relationships between predictors and outcomes of psychological and existential distress.

In this doctoral thesis, I aimed to address this research gap by investigating the predictive impact of perceived relatedness on outcomes of psychological adaptation at the end of life in two prospective studies. While the impact of attachment insecurity on psychological and existential distress was shown in several studies, most associations were based on the influence of attachment anxiety. Research on the specific contribution of attachment avoidance is rare. Although their dismissive way of coping makes avoidant patients prone to feelings of isolation and helplessness, there are currently no longitudinal data on the impact of attachment avoidance on existential distress.

Knowledge about the specific underlying influence and clinical presentation of attachment avoidance may support the development of psychosocial interventions targeting patients' attachment needs and relational issues. Promoting attachment security in a therapeutic alliance may improve patients' perceived relatedness and thereby increase death acceptance and alleviate existential distress at the end of life. Taking into account existing evidence on the effectiveness of psychosocial interventions in reducing psychological and existential distress as well as strengthening attachment security, it is of great interest, which techniques and features may promote attachment security. Based on the framework of attachment theory, an underlying influence of attachment avoidance on patients' perceived relatedness affecting adaptation negatively was proposed (Figure 3).

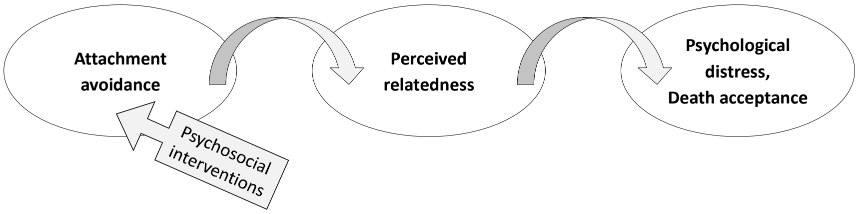
| Research goal | To identify the contribution of attachment avoidance as an underlying factor | To determine the impact of perceived relatedness | To investigate outcomes of psychological adaptation |
|---|---|---|---|
| Constructs of primary focus |  | | |
| Publications | Publication 3<br>Publication 4 | Publication 2 | Publication 1<br>Publication 2 |

*Figure 3.* Conceptualization of research objectives.

The goals of the present work were threefold and addressed in 11 quantitative (1 to 9) and qualitative (10, 11) research questions. Research questions without hypotheses were studied using an explorative approach.

**A. To investigate the value of death acceptance as an outcome of psychological adaptation in patients with cancer**

1. Does death acceptance change over the course of one year? (publication 1)
2. How is death acceptance characterized among patients with cancer? (publication 1)
3. Is death acceptance a predictor of psychological and existential distress after one year? (publication 1)

   Hypothesis (3, a): Moderate death acceptance predicts lower depression, anxiety, and demoralization after one year when controlling for demographic and medical characteristics.

Hypothesis (3, b): High death acceptance is not associated with lower psychological and existential distress after one year.

4. Is death acceptance associated with perceived relatedness? (publication 2)

   Hypothesis (4): There is a positive association between death acceptance and perceived relatedness.

**B. To determine the impact of perceived relatedness on psychological adaptation in patients with cancer**

5. Does perceived relatedness change over the course of one year? (publication 2)
6. Is perceived relatedness a predictor for death acceptance and existential distress after one year? (publication 2)

   Hypothesis (6): Perceived relatedness predicts death acceptance and demoralization after one year when controlling for demographic and medical characteristics.

7. Does perceived relatedness moderate the relationship between severity of illness and death acceptance and existential distress after one year? (publication 2)

   Hypothesis (7): A more severe illness is positively associated with higher death acceptance and lower demoralization after one year. These relationships are moderated by perceived relatedness, with higher perceived relatedness predicting a stronger positive association between an advanced tumor stage and higher death acceptance; and between an advanced tumor stage and lower demoralization, respectively.

**C. To identify the contribution of attachment avoidance as an underlying factor for existential distress in patients with advanced cancer**

8. Does attachment avoidance change over the course of a supportive-expressive psychotherapeutic intervention? (publication 3)
9. Does attachment avoidance mediate the relationship between perceived relatedness, death anxiety, and existential distress? (publication 3)

   Hypothesis (9): Attachment avoidance partially mediates the predictive impact of lower perceived relatedness and higher death anxiety on higher demoralization and higher anxiety after six months when controlling for demographic and medical characteristics.

10. What is the clinical presentation of attachment avoidance in a supportive-expressive psychotherapeutic intervention? (publication 4)
11. What are the challenges in treating a patient with attachment avoidance? (publication 4)

Figure 4 shows the proposed research model. Based on the previous evidence, it includes the assumptions about the relationships between relevant medical and demographic characteristics described above as well as frequently studied constructs of existential and psychological distress.

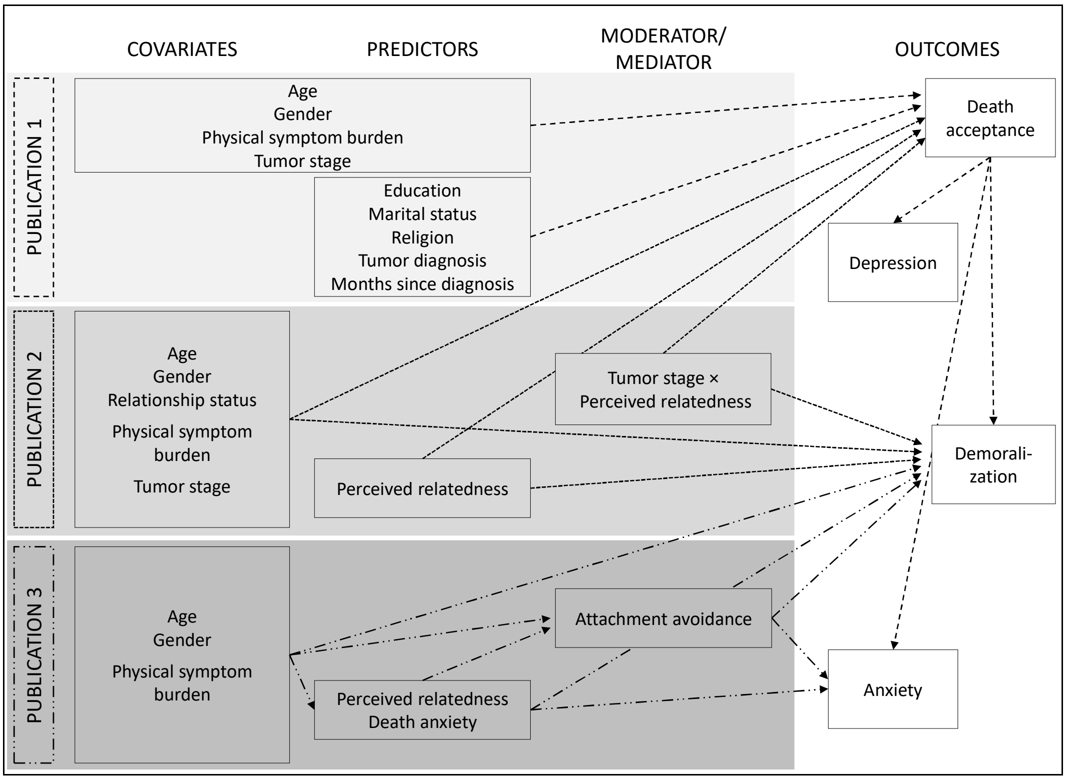


*Figure 4.* Research model for quantitative research questions separated by publication.

## 3 Empirical studies and methods

A longitudinal study and a randomized controlled trial, conducted at the Department of Medical Psychology of the University Medical Center Hamburg-Eppendorf, Germany, and cooperating clinics provided the empirical data for this dissertation. Following, I will describe the study design, the recruitment process, and the study sample for each project as well as the statistical methods used to answer my research questions.

### 3.1 Meaning-focused coping, personal meaning and psychological adaptation over the course of cancer: Longitudinal study of patients with early and advanced cancer (publications 1, 2)

The project, funded by the Donors' Association for the Promotion of Sciences and Humanities in Germany [Stifterverband für die Deutsche Wissenschaft], was conceived and led by Dr. Sigrun Vehling (principal investigator) and Prof. Dr. Anja Mehnert-Theuerkauf.

### 3.1.1 Study design

This longitudinal observational study included adult in- and outpatients with mixed tumor diagnoses who were treated at early and advanced stages of their disease. Patients were recruited at the University Cancer Center Hamburg-Eppendorf (gynecological outpatient clinic, general surgery) and the Lung Clinic Grosshansdorf, Germany (oncology). Patients who were ≤ 18 years old, suffered from severe cognitive or physical impairment, or were not proficient in German were excluded from the study. All participants provided written informed consent and were asked to complete validated self-report questionnaires for personal meaning, sources of meaning, affect, posttraumatic growth, coping, life attitudes, depression, anxiety, symptom burden, death anxiety, and demoralization at three points of assessment (t1: baseline, t2: six-month follow-up, t3: 12-month follow-up). The study was approved by the ethics committee of the Medical Council in Hamburg, Germany (reference number: PV3421).

### 3.1.2 Study sample

Out of 709 eligible patients, 307 patients declared participation (43%) at baseline. Participation rates were 69% (n = 213) and 50% (n = 153) at t2 and t3, respectively. Non-participation analysis showed that compared to non-participants, participants (n = 402, data available for n = 136) were significantly younger (Mean [M] = 59.6, standard deviation [SD] = 11.1 vs M = 65, SD = 10.8; p ≤ 0.001), higher educated (36% vs 14% high school or university diploma, p ≤ 0.001), and less often diagnosed with lung or gastrointestinal cancer (45% vs 70%, p ≤ 0.001) at baseline. Participants and non-participants did not differ with regard to gender (69% vs 71% female, p ≤ 0.51).

## 3.2 Managing Cancer and Living Meaningfully: Randomized controlled trial to test the efficacy of a semi-structured supportive-expressive intervention in German patients with advanced cancer (publications 3, 4)

The project, funded by the German cancer aid [Deutsche Krebshilfe], was conceived by Prof. Dr. Anja Mehnert-Theuerkauf. It was conducted at the Department of Medical Psychology and Medical Sociology of the University Medical Center Leipzig, Germany (principal investigator: Prof. Dr. Anja Mehnert-Theuerkauf) and at the Department of Medical Psychology of the University Medical Center Hamburg-Eppendorf, Germany (principal investigator: Prof. Dr. Dr. Martin Härter). At the study site in Hamburg, I was involved in recruiting patients and managing data from 2012 to 2014, and coordinating the study from 2014 to 2017.

### 3.2.1 Study design

This randomized controlled trial (RCT) recruited adult patients with advanced cancer (UICC stage III or IV) at the two study sites and in cooperation with local oncologists. Patients were assessed for the following inclusion criteria: ≥ 18 years old, fluent in German; high psychological distress (score ≥ 9 on the Patient Health Questionnaire, score ≥ 5 Distress-Thermometer), no acute suicidality, no parallel psychotherapeutic treatment, and no severe cognitive impairment. All participants provided written informed consent and were asked to complete validated self-report questionnaires at three points of assessment (t0: baseline, t1: three-month follow-up, t2: six-month follow-up). The measured psychological constructs included physical symptom burden, fatigue, posttraumatic growth, death anxiety, quality of life, spiritual well-being, attachment insecurity, depression, anxiety, and demoralization. The trial was approved by the local ethics committees (Hamburg: PV4435, Leipzig: 143–14–14042 014).

### 3.2.2 Study sample

Out of 2,071 patients screened for eligibility, 329 fulfilled inclusion criteria and 206 patients declared participation (63%). Participation rates were 74% (n = 152) and 61% (n = 125) at t2 and at t3, respectively. Participants in this single-blind trial were randomized into a non-manualized supportive psycho-oncological intervention (SPI) or into the semi-structured CALM (Managing Cancer and Living Meaningfully) intervention. This manualized, existential and meaning-based short-term intervention addresses four domains: (1) symptom management, (2) changes in self and relations with others, (3) spirituality, sense of meaning and purpose, and (4) preparing for the future, sustaining hope and facing mortality. Over the course of six months, SPI and CALM participants received a maximum of eight individual psychotherapy sessions (M = 4.9, SD = 2.9) provided by licensed psychotherapists. Results of the primary analysis showed that CALM was not superior to SPI in alleviating depressive symptoms (M = 8.8, SD = 5.1 vs M = 8.5, SD = 4.9; Cohen's d = 0.04; p = 0.83) or in any of the secondary outcomes (Mehnert et al., 2020).

There were no differences between participants and non-participants in age (M = 57.9, SD = 11.7 vs M = 57.7, SD = 12.0; p = 0.998) and gender (61% vs 63% female, p = 0.77). Participants had more years of education than non-participants (10 years: 30% vs 23%, 13 years: 50% vs 16%; p ≤ 0.05). Compared to participants, more non-participants had a college or university degree (40% vs 36%, p ≤ 0.05). Gastrointestinal (60% vs 40%, p ≤ 0.001), lung (25% vs 15%, p ≤ 0.001), and breast cancer (33% vs 19%, p ≤ 0.001) was more frequent in participants than in non-participants.

## 3.3 Methods and statistical analysis

For research goals A and B, I used quantitative methods to analyze the empirical data assessed in the longitudinal study (section 3.1). Next to calculating descriptive analyses and determining group differences ($\chi^2$ test), I conducted the inferential statistical analyses listed in Table 2. For research goal C, I used quantitative and qualitative methods to investigate the contribution of attachment insecurity on psychological adaptation in the context of the supportive-expressive psychotherapeutic CALM intervention (section 3.2).

| **Analyses** | **Goal** | **Research question** |
|---|---|---|
| t test | To compare the mean differences of death acceptance | 2 |
| Multinomial regression | To determine the medical and demographic characteristics predicting death acceptance | 1 |
| Multiple regression | To determine the predictive impact of death acceptance on demoralization, depression, and anxiety | 3 |
| | To determine the predictive impact of perceived relatedness on death acceptance and demoralization | 4, 6 |
| Moderated regression | To test the interaction effect of tumor stage × perceived relatedness | 7 |
| Mixed model | To examine the mean differences of perceived relatedness over the course of one year | 5 |
| | To examine the mean differences of attachment over the course of six months | 8 |
| Mediated path analysis | To test the mediating effect for attachment avoidance on existential distress after six months | 9 |
| Multiple imputation | To replace missing values | 1 to 9 |

*Table 2.* Overview of applied inferential statistical analyses.

To explore the clinical presentation of attachment avoidance (research question 10) and to identify challenges in the psychosocial treatment of avoidant patients (research question 11), I analyzed eight transcripts of a patient receiving CALM therapy, following Mayring's (2010) principles of qualitative content analysis (explication technique). The therapy sessions had been audio recorded and later transcribed as part of the RCT.

# 4 Results: Outline of publications

The methods and results of the two projects have been published in several articles (e.g., Mehnert et al., 2020; Spangenberg et al., 2016). The research questions of this dissertation were answered in four articles, which are summarized below. The full texts are attached to this work (page 55 and following). Three out of the four articles have been published in peer-reviewed journals (sections 4.1 to 4.3), the fourth manuscript has been submitted for publication to a peer-reviewed journal (section 4.4).

## 4.1 Publication 1: Characterizing death acceptance

Reference: **Philipp, R.**, Mehnert, A., Lo, C., Müller, V., Reck, M., & Vehling, S. (2019). Characterizing death acceptance among patients with cancer. *Psycho-Oncology*, 28(4), 854–862. https://doi.org/10.1002/pon.5030

**Research goal:** This study aimed to broaden the understanding of death acceptance in patients with cancer by exploring the predictive impact of demographic, medical and psychological characteristics on death acceptance and by determining the predictive impact of death acceptance on psychological and existential distress after one year.

**Methods:** At baseline (t1), we included 307 adult in- and outpatients who were treated for early and advanced cancer at the gynecological outpatient clinic and in general surgery at the University Cancer Center Hamburg-Eppendorf and at the oncology wards of the Lung Clinic Grosshansdorf, Germany. The participation rate at 12-month follow-up (t2) was 50% (n = 153). We assessed death acceptance (Life Attitude Profile-Revised), demoralization (Demoralization Scale), Depression (Depression Module of the Patient Health Questionnaire), anxiety (Generalized Anxiety Disorder Questionnaire), and physical symptom burden (Memorial Symptom Assessment Scale). We calculated multinomial regression analysis with a model including age, gender, medical (tumor stage, diagnosis, physical symptom burden, months since diagnosis) and demographic characteristics (marital status, educational level, religion) at t1 predicting high death acceptance at t1, and multiple regression analyses to determine the impact of death acceptance at t1 on depression, anxiety, and demoralization at t2. We reported odds ratios (OR) and 95% confidence intervals (CI).

**Results:** Patients (mean age 59.6 years, 69% female) reported moderate mean death acceptance at baseline (M = 4.33, SD = 1.30, range 1-7), with no change after one year (p = 0.26). They experienced low depression and anxiety, and moderate demoralization at 12-month follow-up. In a model explaining 22% of the variance (median Nagelkerke $R^2$), multinomial regression showed that older (OR = 1.04, CI: 1.01 to 1.07), male (OR = 3.59, CI: 1.35 to 9.56), and widowed (OR = 3.24, CI: 1.01 to 10.41) patients, diagnosed with stage IV (OR = 2.44; CI: 1.27-4.71) were more likely to experience high death acceptance. Compared to breast cancer, a lung cancer diagnosis was less likely in these patients. Also, death acceptance was lower with every month since diagnosis (OR = 0.99, CI: 0.98-0.99). In the controlled multiple regression analysis, high death acceptance predicted lower demoralization and lower anxiety but not depression after one year.

**Conclusions:** High death acceptance may facilitate psychological adaptation at the end of life predicting lower existential distress after one year, even in patients with an advanced diagnosis. Yet, acceptance or denial of a terminal situation was not associated with a depressed mood. Our results are consistent with findings suggesting a benefit of avoidant coping strategies in male cancer patients. Studying the clinical presentation of death acceptance may provide information about its adaptive degree, whether it can be conceptualized to support younger women in dealing with death anxiety or whether it is used to avoid a deeper engagement in reflections on death and mortality.

## 4.2 Publication 2: Perceived relatedness, death acceptance, and demoralization

Reference: **Philipp, R.**, Mehnert, A., Müller, V., Reck, M., & Vehling, S. (2020). Perceived relatedness, death acceptance, and demoralization in patients with cancer. *Supportive Care in Cancer*, *28*, 2693–2700. https://doi.org/10.1007/s00520-019-05088-2

**Research goals:** This study aimed to explore perceived relatedness in cancer patients over the course of one year and its contribution on death acceptance and demoralization in a longitudinal model. We also tested a protective effect of perceived relatedness on these outcomes with regard to tumor stage.

**Methods:** Adult patients with mixed tumor diagnoses in early and advanced stages of their disease were recruited at the University Cancer Center Hamburg-Eppendorf (gynecology outpatients and general surgery inpatients) and the Lung Clinic Grosshansdorf, Germany (oncological inpatients). At t1, 307 patients declared participation (43% participation rate). After six (t2) and after 12 months (t3), participation rates were 69% (n = 213) and 50% (n = 153). We analyzed data of the following self-report questionnaires: Relationship with others subscale of the modified version of the Posttraumatic Growth Inventory (perceived relatedness), Death acceptance subscale of the Life Attitude Profile-Revised (death acceptance), Demoralization Scale (demoralization), and Memorial Symptom Assessment Scale (physical symptom burden). We calculated mixed models (time as fixed and subjects as random effect) as well as moderated and multiple regression analyses with death acceptance and demoralization at t3 as outcomes. The moderated regression model included tumor stage, perceived relatedness, and their interaction at t1. The multiple regression models included tumor stage and perceived relatedness at t1 as predictors, and age, gender, physical symptom burden, and relationship status at t1 as covariates.

**Results:** Although perceived relatedness was lower after one year than at baseline (t3: M = 2.93, SE = 0.04 vs t1: M = 3.04, SE = 0.03; p = 0.02, range 1-4), patients (mean age 59.6 years, 69% female) reported high perceived relatedness at all points of assessment. Less than 5% of the sample reported low perceived relatedness. There were no differences between patients with early and advanced cancer. Patients experienced most positive outcomes in their relationships with regard to "counting on people in times of trouble" and least positive outcomes with regard to "learning a great deal about how wonderful people are" (Figure 5). Means for death acceptance and demoralization were moderate and did not change within one year. Moderator analyses showed that perceived relatedness had no impact on the strength of association between tumor stage and death acceptance or demoralization after one year. Higher perceived relatedness had a strong predictive value for lower demoralization after one year. Death acceptance after one year was not predicted by perceived relatedness, only male gender had a significant positive impact on the outcome.

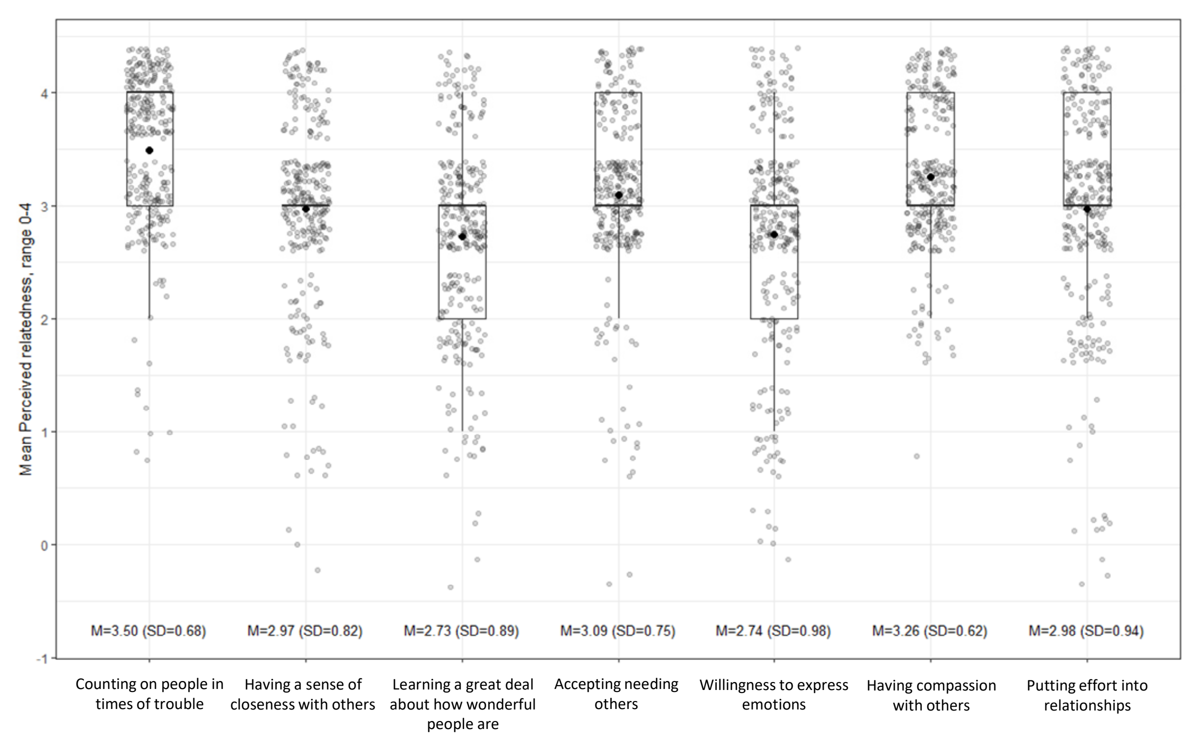


*Figure 5*. Mean values and boxplots of the Perceived relatedness items at baseline, measured by the Relationships with others subscale of the Posttraumatic Growth Inventory (Tedeschi & Calhoun, 1996). Figure adapted from the published article Philipp et al., 2020.

**Conclusions:** The decrease in perceived relatedness may indicate an intraindividual process of partially withdrawing emotions from close others. Because of its ameliorating effect on existential distress, patients experiencing a lack of relatedness may benefit from strengthening relationships in psychosocial interventions. Therefore, conceptualizations of interpersonal relationships in empirical studies and interventions at the end of life should emphasize the mutual processes in managing feelings of isolation and fears of having failed others. Our results further indicate that death acceptance, in contrast to demoralization, may constitute a rather stable individual characteristic, not subject to the influence of varying factors like perceived relatedness.

## 4.3 Publication 3: Role of attachment avoidance in a longitudinal mediation model predicting existential distress

Reference: **Philipp, R.**, Mehnert-Theuerkauf, A., Koranyi, S., Härter, M., & Vehling, S. (2021). The role of attachment avoidance: A longitudinal mediation model predicting existential distress in patients with advanced cancer. Psycho-Oncology. Advance online publication. https://doi.org/10.1002/pon.5640

**Research goal:** This study aimed to determine the relative contribution of attachment avoidance as an underlying factor in a longitudinal model, in which perceived relatedness and death anxiety predicted existential distress (demoralization, anxiety) in patients with advanced cancer.

**Methods:** We conducted this study as a secondary analysis to the German CALM trial, which tested the efficacy of an existential meaning-based individual intervention at the two University Medical Centers Hamburg-Eppendorf and Leipzig, Germany. We included 206 adult patients (63% participation rate) who were diagnosed with an advanced solid tumor and experienced high psychological distress. Participants completed self-report questionnaires at three points of assessment (t0: baseline, t1: three-month follow-up, t2: six-month follow-up). At six-month follow-up, 125 participants completed the questionnaires (61% participation rate). We analyzed the t0- and t2-data assessed for existential distress (demoralization and anxiety, measured by the Demoralization Scale and the Generalized Anxiety Disorder Questionnaire), perceived relatedness (subscale Relationship with others of the Posttraumatic Growth Inventory), death anxiety (Death and Dying Distress Scale), attachment avoidance (subscale Attachment Avoidance of the modified Experiences in Close Relationships Scale), and physical symptom burden (Memorial Symptom Assessment Scale). We calculated one mediated path model, with perceived relatedness and death anxiety at t0 as predictors, attachment avoidance at t0 as mediator, and covariates age, gender, and physical symptom burden at t0 predicting the outcomes demoralization and anxiety at t2. We reported direct (c'), indirect (ab), and total effects (c = c' + (ab)) with standardized estimates (β) and 95% confidence intervals (CI).

**Results:** Participants reported moderate perceived relatedness, death anxiety, and attachment avoidance at baseline, and experienced high demoralization and moderate anxiety after six months. Mean attachment avoidance (M = 3.03, SD = 1.11, range 1-6) and perceived relatedness (M = 8.34, SD = 3.18, range 0-14) did not vary over the course of six months. Compared to baseline, death anxiety, physical symptom burden, demoralization, and anxiety were significantly lower after six months. Mediation analysis (Figure 6) showed that lower perceived relatedness and higher death anxiety indirectly predicted higher demoralization (a1b1: β = -0.07, CI -0.13 to 0.02, p = 0.01; a2b1: β = 0.07, CI 0.02 to 0.12, p = 0.01) and higher anxiety (a1b2: β = -0.05, CI -0.11 to 0.003, p = 0.04, a2b2: β = 0.05, CI 0.001 to 0.10, p = 0.0046) after six months through attachment avoidance. There were no direct (c1', c3') or total effects (c1, c3) of perceived relatedness on demoralization or anxiety. Positive direct (c2', c4') and total effects (c2, c4) of death anxiety on demoralization and anxiety were significant. Accordingly, the relationships between higher death anxiety and lower demoralization after six months, and higher death anxiety and lower anxiety after six months were partially mediated by attachment avoidance. Results further indicate that attachment avoidance suppressed the relationship between perceived relatedness and existential distress after six months.

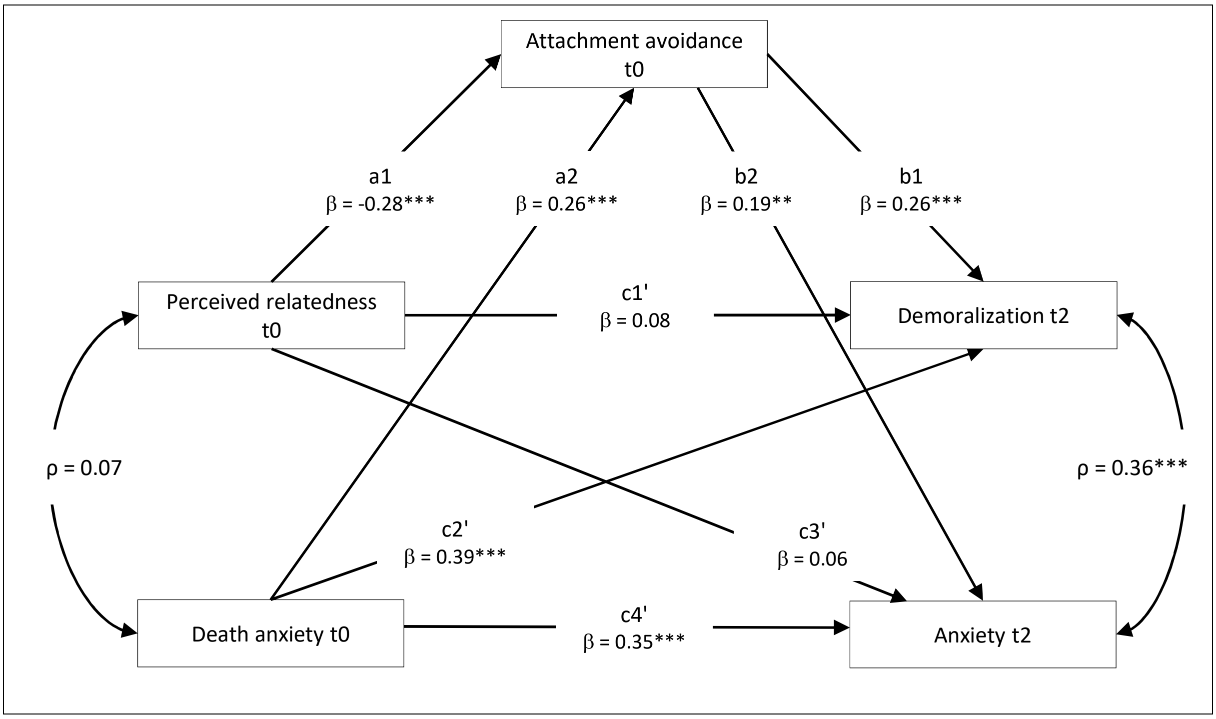


*Figure 6.* Mediated path model without covariates. P-values: * ≤ 0.05, ** ≤ 0.01, *** ≤ 0.001. Figure adapted from the published article Philipp, Mehnert-Theuerkauf et al., 2021.

**Conclusions:** The mediating effect of attachment avoidance on the relationship between death anxiety and existential distress over time supports other research suggesting an underlying contribution of attachment insecurity on existential distress in patients with cancer. Still, research on these dynamic mechanisms is difficult to replicate. The conceptualization of attachment insecurity as an underlying psychological factor points to a trait-like quality, potentially complicating its modification in psychosocial interventions. With regard to its relational aspects, findings for death anxiety indicate that patients may benefit from addressing constructs sensitive to change in psychosocial interventions. The feasibility of perceived relatedness to assess interpersonal relationships needs to be studied further, especially in context of the value assessing mutual relational experiences.

## 4.4 Publication 4: Understanding avoidant attachment using a psychoanalytical perspective

Reference: **Philipp, R.**, Krüger, A., Lindner, R., Mehnert-Theuerkauf, A. & Vehling, S. (2021). *Understanding avoidant attachment in a patient with terminal cancer: A psychoanalytical perspective.* [Manuscript submitted for publication]. Department of Medical Psychology, University Medical Center Hamburg-Eppendorf

**Research goals:** This study aimed to illustrate the clinical presentation of attachment avoidance in a male patient with terminal cancer undergoing a supportive-expressive psychotherapy and to identify potential challenges in treating similar patients using a psychoanalytical perspective.

**Methods:** As part of a RCT, testing the efficacy of a semi-structured short-term individual psychotherapy for patients with advanced cancer, therapy sessions were audio recorded and transcribed. Participants' attachment insecurity was assessed using the modified Experiences in Close Relationships Scale. For our qualitative analysis, we chose a patient who experienced high attachment avoidance according to the scale. Analyzing the complete eight therapy sessions, we followed the principles of qualitative content analysis (*explication technique*). The patient's statements during the sessions were determined as the material for explication. To understand and explain the meaning of his statements, we applied knowledge about his recent diagnosis, concerns frequently reported by oncological patients (*lexico-grammatical definition*) as well as all verbal and non-verbal material presented during therapy (*narrow context analysis*). To gain a deeper understanding of the patient's avoidant pattern, we added psychoanalytical interpretations to the material *(broad context analysis)*. Preliminary findings and psychodynamic hypotheses were discussed after the first round of coding, the coding system was then expanded taking into account manifest and latent content of the patient's statements. The second round of coding included annotating the material with hypotheses of the patient's unconscious expectations in relationships, defense mechanisms, and unconscious emotional conflicts (*explicatory paraphrase*).

**Results:** The patient used his avoidant emotional and behavioral patterns to manage painful feelings. In this context, the term "avoidance" may subsume a variety of defense mechanisms, which the patient employed to reduce his fears associated with (1) feelings of dependency: denial, (2) overwhelming death-related distress: isolation of affect, displacement, (3) feelings of guilt and shame: repression, (4) regulating his interpersonal relationships: projective identification. These defense mechanisms may have prevented him from sharing his fears about the end of life with the therapist more explicitly. Still, the low intensity setting offered the patient a reliable, yet unobtrusive, therapeutic relationship in a frequency he could tolerate. This allowed him to access, express, and normalize his affective states.

**Conclusions:** Using the psychoanalytic perspective it was possible to identify the rigid defense mechanisms in a dying patient with avoidant attachment, which he employed unconsciously to protect himself from overwhelming affect. Challenges for therapists working with similar patients may include creating a holding environment, in which patients can ease their defense and express emerging affects, as well as openness to endure joint mourning processes with a risk of acting out own feelings of helplessness. This focus on the therapist-patient-relationship to address relational issues may be studied further in patients with different attachment needs.

## 5 Discussion

Throughout the disease trajectory, cancer patients may show emotional detachment, dismissive behavior, or a strong need for autonomy within their interpersonal relationships. While such emotional and behavioral patterns can be understood using the framework of attachment theory, the contribution of early relationship experiences to adult cancer patients' sense of relatedness to close others has rarely been studied. Moreover, the lack of longitudinal evidence in this field of research does not allow for conclusions about underlying associations between these relational constructs and psychological adaptation at the end of life. Using empirical data from two prospective studies, this dissertation therefore aimed (A) to investigate the value of death acceptance as an outcome of psychological adaptation, (B) to determine the impact of perceived relatedness on psychological adaptation, and (C) to identify the contribution of attachment avoidance as an underlying factor for existential distress. Answering the corresponding research questions (section 2), I will summarize and interpret the results in the following sections separated by research goal and publication.

## 5.1 Summary of results

The first publication studying research goal A showed that mean death acceptance was moderate in a sample of mixed cancer patients and did not change over the course of one year (research question 1). Older, male, and widowed patients were more likely to experience high death acceptance than young, female, and single patients. Patients were less likely to experience high death acceptance with every month since diagnosis and when they were diagnosed with lung cancer, compared to a breast cancer diagnosis. Patients with advanced cancer (stage IV) were more likely than patients with early cancer (stages I to III) to experience high death acceptance (research question 2). Other than hypothesized, high, not moderate death acceptance predicted lower psychological and existential distress after one year. High death acceptance predicted less demoralization and anxiety, after controlling for age, gender, tumor stage, and physical symptom burden (research question 3). Yet, death acceptance had no impact on depression after one year. The second publication studying research goal A showed no association between death acceptance and perceived relatedness (research question 4).

The second publication studying research goal B showed that mean perceived relatedness in a sample of mixed cancer patients was high but had significantly decreased at 12-month follow-up (research question 5). After controlling for age, gender, tumor stage, and physical symptom burden, higher perceived relatedness was a strong predictor for lower demoralization after one year but had no impact on death acceptance at follow-up (research question 6). Moderator analyses showed no interaction effect for perceived relatedness and tumor stage on the outcomes death acceptance and demoralization after one year, indicating no benefit for strong relatedness in coping with an advanced disease compared to an early disease (research question 7).

The third publication studying the quantitative questions of research goal C showed that patients with advanced cancer reported moderate mean attachment avoidance, which did not change over the course of six months with patients either receiving a non-manualized supportive psycho-oncological or a manualized supportive-expressive intervention (research question 8). Attachment avoidance partially mediated the impact of higher death anxiety on lower demoralization and lower anxiety after six months when controlling for age, gender, and physical symptom burden. Other than hypothesized, the relationship between perceived relatedness and existential distress at the end of life was not mediated by attachment avoidance due to a lack of total and direct effects of perceived relatedness on demoralization and anxiety after six months. Yet, lower perceived relatedness predicted higher attachment avoidance at baseline and the indirect effects of attachment avoidance and perceived relatedness on existential distress were significant indicating a suppression effect (research question 9). Here, the strong predictive impact of perceived relatedness on demoralization found in publication 2 could not be replicated.

Publication 4 studying the qualitative questions of research goal C showed that the avoidant attachment pattern of a patient with terminal cancer was reflected in his narrative when receiving a short-term supportive-expressive psychotherapy. Qualitative content analysis identified repeating themes with regard to his need for self-reliance and autonomy, emotional detachment, and withdrawal from interpersonal relationships (research question 10). Attachment avoidance in this patient was characterized by the employment of several defense mechanisms to manage his fears and to protect his inner balance. The prominent defense mechanisms were (1) denial of feelings of dependency, (2) isolation of affect and displacement of overwhelming death-related distress, (3) repression of feelings of guilt and shame, and (4) projective identification to regulate his interpersonal relationships. While these rigid defense mechanisms may have interfered with sharing fears about death and dying, the low intensity setting offered a reliable therapeutic relationship, in which the patient was able to access, express, and normalize his affective states (research question 11).

## 5.2 Interpretation of current results and previous evidence

Following, I will discuss these current results and interpret them in light of the current and previous evidence, answering each research goal.

### 5.2.1 The limited value of death acceptance as an outcome of psychological adaptation

Exploration of death acceptance in a mixed cancer sample (publication 1) revealed lower death acceptance than in the norm sample for this age group (M = 5.17, SD = 1.0, $p \leq 0.001$; Reker, 1992), a sample of patients with prostate cancer (M = 4.80, SD = 1.1. $p \leq 0.001$; Mehnert & Koch, 2008), and a sample of hospitalized chronically ill patients (M = 5.23, SD = 1.1, $p \leq 0.001$; Nichols & Riegel, 2002). Mean death acceptance was comparable to a sample of patients with breast cancer (M = 4.28, SD = 1.3, $p = 0.56$; Mehnert et al., 2007). Taking into account the demographic and medical characteristics identified to influence high death acceptance, these results are consistent with the sample composition of each study: Samples with older men, who have been diagnosed more recently reported higher death acceptance than a sample with women, who have been living with breast cancer for almost four years on average. In this context, the first publication underlined previous research that older men experienced higher levels of death acceptance than young women (Neimeyer et al., 2004; Pinquart et al., 2006; Wong et al., 1994), and was in line with evidence on higher psychological distress in young women with cancer (Cohen, 2014; Yeo et al., 2014). One explanation for this finding may be that male cancer patients tend to employ avoidant strategies to manage their distress (Green et al., 2011; Hoyt et al., 2014).

In reference to the trichotomy-based conceptualization of death anxiety by Tong and colleagues (2016), in which moderate death anxiety was found in patients who reflected on death-related concerns and engaged in discussions about their own mortality, a non-linear relationship between death acceptance and depression, anxiety, and demoralization was hypothesized in publication 1. Yet, high, not moderate death acceptance suggested adaptive processes with regard to existential distress but had no impact on depression. Thus, acceptance of a terminal situation could alleviate anxiety, hopelessness, and loss of meaning, without being accompanied by a better mood.

Including the evidence from publication 3, these findings support the assumption that death acceptance and death anxiety are not merely two opposites of one continuum but represent two separate constructs. Investigating the course of existential distress, publication 3 showed that mean death anxiety significantly decreased over six months. Although it remains unclear, whether this effect was caused by one of the supportive psycho-oncological psychotherapies or an improvement over time, another RCT testing CALM against a usual care condition (Rodin et al., 2018) showed an improvement in death anxiety for those patients receiving no structured psychotherapy (usual care) as well. This indicates that, compared to death acceptance, death anxiety is a construct, which is sensitive to change. However, another reason for these findings may be the different response patterns for both constructs. Whereas death anxiety was assessed on a six-point Likert-scale ranging from no distress to extreme distress, death acceptance was assessed on a seven-point Likert-scale ranging from strongly disagree to strongly agree. Most patients chose the neutral "undecided" category, which may be interpreted as ambivalence towards death acceptance. In contrast to the findings for death anxiety, moderate death acceptance may represent patients who avoid engaging in thoughts about the finiteness of life.

Results of publication 2 showed no bivariate association between perceived relatedness and death acceptance at baseline, nor a predictive impact of perceived relatedness on death acceptance after one year. In addition to the findings of publication 1, these results point towards death acceptance as a rather stable, favorable attitude towards one's own morality indicating a trait-like quality. Because of its insensitivity to change, it may be concluded that death acceptance is not a suitable outcome to assess psychological adaptation at the end of life but could be considered as an individual protective factor (Wong, 2007).

### 5.2.2 The strong predictive impact of perceived relatedness on existential distress

Because the lack of predictive value of perceived relatedness on death acceptance has been discussed in section 5.2.1, this section focuses on the relationship between perceived relatedness and existential distress operationalized by demoralization. Similar to death acceptance, results of publication 2 showed no significant change in mean demoralization after one year. Yet, the strong predictive impact of perceived relatedness on demoralization suggests that demoralization reflects a variable psychological state subject to the influence of varying factors like patients' perception of interpersonal relationships. This is further underlined by the results of publication 3, in which demoralization had decreased significantly after six months when patients received a psycho-oncological supportive intervention. Overall, results of publication 2 build on previous evidence suggesting that the implications of strong interpersonal relationships of psychological distress among cancer patients are twofold: Although high levels of perceived relatedness suggest psychological adaptation, patients experienced a slight decrease in perceived relatedness, possibly indicating a detachment process.

The patients studied in publication 2 reported high levels of perceived relatedness. This is in line with other studies showing high levels of connectedness (Hales et al., 2014) and perceived social support (Gonzalez-Saenz de Tejada et al., 2016) in patients with mixed cancer diagnoses. The predictive impact of high perceived relatedness on lower demoralization after one year further underlines similar findings for demoralization (Robinson et al., 2015) as well as evidence on the positive association between strong interpersonal relationships and lower psychological distress, such as depression and anxiety, hopelessness, and a desire for hastened death (Badr et al., 2015; Lo et al., 2013). The substantial decrease in demoralization puts emphasis on the relational aspects of this construct. Patients' relatedness may be challenged throughout different stages of the disease: Loss of continuity immediately after diagnosis, incapacity to preserve autonomy and control during medical treatment, and persistent uncertainty as well as fears of death and dying in palliative care – all of which may be accompanied by frequent expressions of demoralization like sense of failure, worthlessness, feelings of being a burden and feelings of isolation and loneliness (Clarke & Kissane, 2002; Pitman et al., 2018). Accordingly, patients may benefit from strong interpersonal relationships across all tumor stages. In addition to statistical explanations (lack of power to detect differences, underrepresentation of patients with low levels of perceived relatedness), this may clarify why a protective effect for perceived relatedness on the relationship between tumor stage and demoralization was not found in publication 2.

At the same time, mean perceived relatedness had significantly decreased after one year. Although the change reported in publication 2 was small and unlikely to be clinically meaningful, it is noteworthy considering the overall high level of perceived relatedness in this sample. There is a lack of evidence regarding the course of patients' perception of interpersonal relationships over a comparable period. One longitudinal study in patients with colorectal cancer (Gonzalez-Saenz de Tejada et al., 2016) did not report data for perceived social support at 12-month follow-up. A RCT, testing a dyadic psychosocial intervention in patients with advanced lung cancer and their family caregivers, reported data for relatedness at baseline and two-month follow-up (Badr et al., 2015). Whereas relatedness significantly increased in participants receiving the intervention, those receiving usual medical care reported a slight, but not significant, decrease in relatedness after two months. These data may indicate that without promoting relatedness throughout the lengthy cancer process, patients emotionally withdraw from their close others. In the inevitable process of saying "goodbye", this may lighten feelings of being a burden, grief or guilt of leaving a loved one behind (Ball et al., 2016; Boston et al., 2011). Still, patients feeling emotionally connected to their partners and engaging in a meaningful communication at the end of life have the opportunity to engage in a joint mourning process, instead of experiencing isolating, negative affect like guilt, shame, or depression, facilitating the grieving process for their partners (Manne et al., 2015; Otani et al., 2017; Wong & Ussher, 2009).

### 5.2.3 Attachment avoidance contributes to existential distress through perceived relatedness at the end of life

Despite the mixed results with regard to the mediating effect of attachment avoidance in predicting existential distress in publication 3, the assumption of an underlying contribution of attachment avoidance on interpersonal relationships is supported, when taking into account the results of publication 4 illustrating the impact of an avoidant attachment pattern on the course of a supportive-expressive therapy.

In this sample of patients with advanced cancer, there was no change in mean attachment avoidance after six months, even though participants in both study arms received a supportive psycho-oncological intervention. This is in line with the observations made during the qualitative analysis (publication 4). The identified defense mechanisms constituting the patient's avoidant pattern persisted until the last session and interfered with openly communicating about the patient's dependency needs. Also, a longitudinal study on avoidant attachment in early breast cancer patients reported no change in mean attachment avoidance between baseline ($M = 3.49$, $SD = 0.78$) and one-year follow-up ($M = 3.51$, $SD = 0.84$, $p = 0.85$), with mean values being higher than those reported in publication 3 (baseline: $p \leq 0.001$) (Lee et al., 2018).

Compared to the findings in publication 2, the role of perceived relatedness in publication 3 was minor with patients experiencing moderate, not high, perceived relatedness and perceived relatedness having no predictive impact on existential distress after six months. As described in detail in section 5.3.2, comparability between these findings may be limited due to different study samples (publication 2: all tumor stages vs publication 3: advanced cancer), study designs (observational study vs RCT), time frames (12 months vs six months), and measurement (modified current standing version of *Relationship with others* subscale vs original subscale; Tedeschi & Calhoun, 1996; Tennen & Affleck, 2009). Still, following the idea of a detachment process over time described in section 5.2.2, lower levels of perceived relatedness in the study sample of publication 3 could be explained by the advanced cancer diagnosis. Because of the lack of association between perceived relatedness and existential distress in publication 3, results were inconclusive with regard to a mediating effect for attachment avoidance for this relationship. The significant indirect effect (see results in section 4.3) for perceived relatedness and attachment avoidance on existential distress and larger direct than total effects hint towards a suppression effect (MacKinnon et al., 2000). This implies that without attachment avoidance, the effect of perceived relatedness on existential distress would be underestimated. Moreover, the negative association between perceived relatedness and attachment avoidance at baseline was stronger than the positive association between death anxiety and attachment avoidance (Figure 6) supporting the validity of the measured construct.

The relationship between death anxiety and existential distress was partially mediated through attachment avoidance, meaning that the direct effect including attachment avoidance was smaller than the total effect without attachment avoidance (Baron & Kenny, 1986). The clinical implication that avoidant patients are likely to experience higher death-related distress and may even wish for a hastened death due to hopelessness has been described in previous research (Hales, 2016). It is also reflected in the clinical material of publication 4: The patient's imminent death might have been his major concern when he sought therapy, yet, he did not explicitly share his fears about death and dying. Instead, he denied or repressed feelings of unpreparedness, grief, or regret associated with death anxiety. The patient did not indicate a desire for hastened death but wished for a quick death in case his health deteriorated. He feared becoming a burden to his family. Ideas like this can be interpreted as an attempt to regain control: Sensing that they are becoming more dependent on others, avoidant patients fear abandonment. Hence, they want to be the ones to decide when their life is ending and thereby maintain a sense of autonomy (Coyle & Sculco, 2004; Hatano et al., 2021; Tan et al., 2005). These considerations suggest a close link, not only between death-related distress and avoidance, but also between avoidant coping strategies, perceived burdensomeness and social isolation at the end of life (Wilson et al., 2016). One possible relationship between these constructs being that death anxiety elicits fear of abandonment through increased dependency, resulting in perceived burdensomeness.

Considering the conceptual proximity of perceived burdensomeness and loss of dignity, such dynamics may lead to isolating feelings like shame and guilt, which further prevent patients from reaching out to others to better cope with this existential distress.

Although the results of publications 3 and 4 allow for the assumption of an underlying contribution of attachment avoidance to the perception of interpersonal relationships and, thus, to existential distress, findings point towards a trait-like quality of attachment avoidance because of its insensitivity to change. As shown in publication 4, oncological patients in a psycho-oncological supportive intervention may not share enough biographic information to explore early relationships with their primary caregivers and to comprehend the individual roots of attachment insecurity for each patient. This stresses the need for assessing immediate interpersonal relationship experiences instead of underlying, stable factors. While the value of perceived relatedness in this context needs to be studied further, the importance of relational aspects in coping with existential distress at the end of life is supported by the relational conceptualization of death anxiety. However, challenges in treating avoidant patients may lie within establishing a reliable therapeutic alliance that patients experience as a holding environment or secure base from which they may explore potentially painful affect (Maunder & Hunter, 2016; Winnicott, 1960), while at the same time acknowledging the importance of patients' avoidant coping strategies for their inner balance.

## 5.3 Methodological evaluation

This dissertation takes into account the current state of research on attachment insecurity in patients with early and advanced cancer as well as research on existential distress in patients with terminal cancer and addresses the lack of consistent conceptualization and research of the impact of interpersonal relationship experiences on patients' psychological adaptation. For this purpose, the existing evidence was summarized reporting valid and reliable empirical results for the associations between attachment insecurity, different constructs of interpersonal relationships, and psychological adaptation. The overall value of these constructs in capturing cancer patients' experiences has been shown previously but is mostly based on cross-sectional data, attachment anxiety and ambiguous operationalizations of patients' interpersonal relationship experiences. The present work closed this research gap by studying the impact of attachment avoidance and perceived relatedness on psychological adaptation in two prospective research projects, allowing for conclusions about the causal direction of hypothesized relationships between predictors and outcomes.

### 5.3.1 Strengths

The two prospective research projects upon which the current evidence is based were conducted by adhering to high methodological standards. The longitudinal observational study recruited adult in-and outpatients with heterogeneous solid tumor diagnoses across all tumor stages, providing valid information for a wide range of cancer patients. Moreover, it is one of the few studies (Lee et al., 2018; Lo et al., 2010; Tang et al., 2016) investigating cancer patients over the course of one year. The RCT testing the efficacy of the semi-structured CALM intervention in patients with advanced cancer was conducted following Consolidated Standards of Reporting Trials (CONSORT; Schulz et al., 2010). Because the RCT included patients with an advanced disease who were screened for high distress, the trial provided data for a population, which is rarely investigated due to patients' poor physical health. To examine treatment elements and techniques in both study arms, the therapy sessions were audio recorded and transcribed (Koranyi et al., 2020). The material allowed for an in-depth analysis of the therapeutic process and an integration of quantitative and qualitative results. Also, the psychotherapists providing the therapy session were experienced in treating oncological patients, which helped to identify distinctive features in the treatment of the brain tumor patient.

The availability of prospective empirical data in both studies allowed testing the directions of underlying relationships between the studied constructs. To analyze the data adequately, a variety of statistical methods was applied (Table 2). The use of quantitative and qualitative methods bridged the gap between findings of complex statistical models, which investigated the underlying contribution of attachment insecurity but have been difficult to replicate (An et al., 2018; Vehling et al., 2019), and qualitative data, characterizing interpersonal issues of insecurely attached patients (Hunter & Maunder, 2016; Tan et al., 2005). In this context, the present work is unique because it tests hypotheses that were derived from theoretical models and associated quantitative findings in a clinical context.

Within this solid methodological framework, publications 1 to 4 succeeded in answering the research question of this dissertation. Despite its lack of value as an outcome of psychological adaptation, publication 1 comprehensively characterized death acceptance as a protective, trait-like quality in cancer patients and added conceptual knowledge regarding its relation to death anxiety, which has been discussed in previous research (Neimeyer et al., 2004; Ray & Najman, 1974; Wong, 2007). Moreover, synthesizing previous evidence of research on patients' interpersonal relationships and taking into account the results of publication 2, this work promotes the consistent use of perceived relatedness as operationalization for assessing the mutual processes and joint experiences within cancer patients' relationships. Finally, the mediated path analysis (publication 3) that controlled for covariates and included assumptions about the relationships between predictors, outcomes and underlying factors addressed the lack of evidence on the causal direction of frequently studied constructs of existential distress and relationship experiences.

### 5.3.2 Limitations

Although the study sample of the first research project (section 3.1.2) was recruited from different oncological departments, results of publications 1 and 2 may only apply to younger and higher educated patients. Less than half of the patients found eligible for this study declared participation and completed the baseline assessment. Also, the substantial drop-out rates at both follow-up assessments (31% and 50%, respectively) suggest that patients with high distress and poor prognosis were underrepresented in this sample. In contrast to this limitation, the results of publication 3 may only apply to highly distressed patients with advanced cancer due to the study design of the second research project (section 3.2.1). Because of the specific inclusion criteria, non-participation and drop-out rates were high (37% and 39%, respectively).

As the empirical data reported in publication 3 were collected in an RCT, the comparability with the observational data of publication 1 and 2 is limited. Also, publication 3 reported results for the total study sample without taking into account group affiliation. This decision was based on the lack of significant differences between participants' demographic or medical characteristics as well as the calculated intra cluster correlation coefficients, which showed that only a maximum of 7% of the total variation in the outcomes could be attributed to group affiliation.

In both research projects, reliable and valid self-report questionnaires were used to assess the relevant psychological constructs. Yet, there were limitations regarding the measurement of death acceptance and perceived relatedness (publications 1, 2 and 3). Following the approach by Tong and colleagues (2016), death acceptance was studied as a categorical variable with low, moderate, and high levels based on the first and third quartile of the mean death acceptance value in the sample. It is likely that forming groups reduced the variance for death acceptance compared to conducting analyses with death acceptance as a continuous variable. Also, death acceptance was measured using the subscale of the *Life Attitude Profile Revised* (LAP-R; Reker, 1992). Compared to the conceptualization of the Death Attitude Profile developed by Wong and colleagues (1994), the items of the LAP-R subscale seem to assess a state of neutral acceptance, in which death is neither feared nor welcomed. Yet, such a state is neither realistic nor favorable for patients with cancer considering the associated death-related distress. In this context, cancer patients' attitudes towards death may be better captured by including concepts like approach acceptance, assessing beliefs in an afterlife, and escape acceptance, assessing death as an end to suffering (Wong et al., 1994). Perceived relatedness was assessed using the current standing version (publication 2) and the original version (publication 3) of the Relationship with others subscale of the *Posttraumatic Growth Inventory* (PTGI, Tedeschi & Calhoun, 1996; Tennen & Affleck, 2009). Although the items (Figure 5) seem to capture interdependent processes of interpersonal relationships, the short, one-dimensional scale may not represent the complex relational dynamics described in section 1.2.2. Moreover, the PTGI retrospectively assesses positive outcomes to a stressful event instead of current experiences based on research suggesting that major life crises have the capacity to overthrow established beliefs and attitudes following the stimulation of cognitive processing (Caspari et al., 2017).

Lastly, a limitation to the qualitative approach chosen for publication 4 is that a psychoanalytical perspective was used to gain a deeper understanding of a supportive-expressive therapy provided by a cognitive-behavioral therapist. Both types of psychotherapy differ greatly in their goals and techniques. Still, the psychoanalytical method was applied because of its unique language that captures the complexity of interdependent relationships and which proved helpful to investigate the described research goals.

## 5.4 Future directions for research

Depression, anxiety, and constructs of existential distress are frequently studied outcomes in psycho-oncological research. Based on the variety and importance of relational aspects in constituting existential distress and death anxiety in particular (Grech & Marks, 2017; Lo et al., 2016; Tong et al., 2016; Wilson et al., 2016), this dissertation studied the value of a positive construct by characterizing death acceptance in patients with cancer. However, results showed that death acceptance represented a stable attitude towards death and dying and was not linked to subjective relational experiences. Hence, future research may further evaluate the potential of positive outcomes that are associated with relational aspects.

Despite the previous and current evidence underlining the relevance of patients' relational experiences when coping with cancer, a consistent and comprehensive conceptualization of these experiences and their measurement is missing. Their influence is often assessed using unilateral constructs, such as social support, or constructs with low variability, such as relationship status, that cannot identify interpersonal differences. Consequently, attachment insecurity has been used as an operationalization to assess relatedness in cancer patients (An et al., 2018; Lo et al., 2013), most likely because of the availability of the ECR-M16 (Lo et al., 2009) as a valid and reliable self-report instrument. Yet, the instrument was developed to measure adult attachment based on the latent factors anxiety and avoidance rather than to assess current experiences in close relationships (Brennan et al., 1998). Also, the moderate, yet significant impact of perceived relatedness on attachment avoidance found in publication 3 emphasizes the distinctiveness of both constructs and the need for separate measurement. Due to its insensitivity to change (Mehnert et al., 2020), future research may consider attachment as an inherent, protective factor but not as a concept that can be targeted explicitly in psychosocial interventions.

As was shown for death anxiety, the potential for change is higher for constructs that include relational concerns (publication 3). The present work proposed the construct of perceived relatedness to capture patients' perception of immediate and mutual relationship processes. However, distribution of perceived relatedness in the study sample of publication 2 showed that the PTGI subscale Relationship with others did not differentiate well between low and high levels of perceived relatedness. This is most likely due to the theoretical framework of posttraumatic growth (section 5.3.2; Caspari et al., 2017). Also, the retrospective assessment of perceived relatedness in publication 3 could have been inferior to the current assessment of perceived relatedness in publication 2. The item pool of an appropriate instrument assessing perceived relatedness would need to reflect patients' current positive and negative relational experiences, their perception of themselves and others in relationships as well as ideas about how they are perceived by others.

The previous evidence on interpersonal relationships summarized in section 1.2 showed that compared to the conflicting results of quantitative research (Fong et al., 2017; Luszczynska et al., 2013), most qualitative studies allowed for conclusions concerning possible goals of psychosocial interventions because they were reflecting patients' complex and often ambivalent experiences within their relationships (Badr et al., 2016; Stenhammar et al., 2017; Ussher et al., 2011). This was also the case for the qualitative findings of the present work: The patient was more expressive of his feelings when he acknowledged the reliability of the therapeutic alliance and seemed to feel more related towards his therapist over the course of therapy. However, this was not reflected by any of the quantitative outcomes. This further underlines the need for quantitative measures assessing the complexity of patients' perception of their interpersonal relationships.

A promising instrument to quantitatively assess perceived relatedness in cancer patients may be the *Depressive Experiences Questionnaire* (DEQ; Blatt et al., 1976; Blatt et al., 1995). The subscales *Dependence* and *Relatedness* assess two facets of an overall *Dependency* factor. They measure concerns within interpersonal relationships including feelings of helplessness, fears about separation and rejection, experiences with frustration, as well as sadness and loneliness caused by disruption in a relationship. The validated questionnaire was developed in line with attachment theory and showed good internal consistency (Blatt & Levy, 2003; Zuroff et al., 1983; Zuroff & Fitzpatrick, 1995). Items like "Without support from others who are close to me I would be helpless" (Dependence) or "I would feel like I'd be losing an important part of myself if I lost a very close friend" (Relatedness) have the potential to capture the mutual dynamic within relationships. Still, the value of both subscales for representing the relational experiences of oncological patients needs to be studied.

Addressing the high drop-out rates in both study samples and the lack of change in some of the outcome variables, future studies may benefit from longitudinal designs with more frequent points of assessment, shorter intervals between assessments, and longer periods of observation with a minimum of 12 months to detect changes. Instead of examining the course of mean values over time, these designs would provide sufficient data to study potential changes in constructs like death acceptance and attachment avoidance on an individual level.

## 5.5 Clinical implications

Cancer patients in both study samples reported moderate psychological and moderate to high existential distress. There is a number of psychosocial interventions that were specifically developed to alleviate the existential distress elicited by cancer and its treatment and meta-analyses show small to moderate pooled effects in improving it (Bauereiß et al., 2018; Vos et al., 2015). Patients are most likely to seek the support of a therapist, if they feel that their profound emotional burden cannot or can no longer be contained within their existing relationships (Cohen & Block, 2004; Tan et al., 2005). In this context, psychosocial interventions provide a setting, in which patients may acknowledge and share their hopes and fears, without burdening their close others. However, most patients in the study samples experienced moderate to high perceived relatedness and moderate attachment insecurity. Thus, low perceived relatedness – possibly due to the additional relational strain caused by cancer – and difficulties to trust or to accept the help of others seemed to be an issue for only a small proportion of patients. Especially in older men, avoidance and denial were found to have a protective effect on emotional distress and negative changes within their interpersonal relationships (Darabos & Hoyt, 2017; Zimmermann, 2012). For them, the benefits of psychosocial interventions confronting their prevalent coping mechanisms may be limited as a disruption could lead to even more distress. As was shown here for the male patient's supportive-expressive therapy, patients may benefit from a reliable and unobtrusive therapeutic alliance, a secure base that takes into account patients' individual dependency needs (Maunder & Hunter, 2016; Milberg & Friedrichsen, 2017). Containing the patients' intense affectual states, therapists can help them to explore and symbolize fears about death and dying (Macleod, 2009).

Although strengthening patients' attachment security and easing maladaptive coping mechanisms is one of the goals of existing attachment-oriented interventions, a direct effect on reducing attachment insecurity has not been found so far (Nicolaisen et al., 2018; Rodin et al., 2018). Moreover, results for psychosocial interventions directly discussing existential themes, such as maintaining and strengthening relationships, perceived burdensomeness, and promoting hope were mixed (Grossman et al., 2018). This suggests that neither targeting specific aspects of existential distress nor reactivated psychological conflicts, early experiences of loss and separation, or underlying beliefs about interpersonal relationships are indicated in the psychological treatment of cancer patients (Bowlby, 1973; Macleod, 2009). Publication 4 illustrated how even patients who struggle with relatedness can benefit from a reliable therapeutic setting, in which the patients' most distressing concerns may unfold. Especially for those patients with limited life expectancy, approaches appreciating the patient's immediate and individual needs may be favorable. In this context, therapists may reflect on the individual association between a patient's early relationship experiences, their current perception of relationships, and their coping strategies. This may enable therapists to develop an understanding inner attitude towards their patients, from which interventional techniques can be derived that help both therapists and patients to engage in a constructive relationship (Nash et al., 2009).

Psychodynamic approaches provide a corresponding theoretical framework but few have conceptualized psychodynamic therapy for the treatment of oncological patients at the end of life (Cohen & Block, 2004; Macleod, 2009). Psychodynamic therapy is not restricted to working through psychological conflicts in long-term treatments, yet offers a way of thinking, in which conflicting and often ambivalent emotional states of cancer patients can be explored (Yuppa & Meyer, 2017). It allows patients to oscillate between hope and despair, gratitude and futility, connectedness and separation in a holding environment. While therapists may identify with the patients' emotional pain and thereby help them to normalize their affect (connectedness), they may also offer a more distanced point of view on current events (separation), from which new perspectives may arise. This process helps the patient to develop or to regain a greater range of emotional flexibility, allowing the patients to grief about what they have lost to cancer.

Such an approach is not unique for psychodynamic psychotherapy but feasible for every psychotherapeutic setting that creates an environment where patients can explore their specific needs: upholding functional coping strategies but also offering a secure base for avoidant patients; or sharing relational concerns, such as loneliness or perceived burdensomeness, for patients with low perceived relatedness. Other health care providers, such as physicians and nursing staff, may also work towards a relationship with their patients, which takes into account patients' individual dependency needs. One approach may be to conceptualize the therapeutic alliance as a space where patients can reflect on the inevitability of death and, thus, initiate a joint mourning process. At the same time, therapists may pay attention to the strong need for autonomy in some patients.

## 5.6 Conclusions

This dissertation studied the impact of cancer patients' relationship experiences for psychological adaptation at the end of life. Therefore, it focused on attachment avoidance as an individual underlying factor influencing cancer patients' perception of interpersonal relationships and their potential to either alleviate or aggravate psychological distress. The gathered evidence supports this assumption in general but indicates the need for adjustment concerning specific aspects of the studied psychological constructs. Results show that death acceptance was not sensitive to change and was not predicted by perceived relatedness, reducing its value as an outcome of psychological adaptation. Instead, it was found that demographic (age, gender, marital status) and medical characteristics (tumor stage, diagnosis, months since diagnosis) had an impact on the level of death acceptance. Thus, death acceptance may be conceptualized as a trait-like characteristic with a protective effect on psychological distress. Accordingly, high death acceptance was found to predict lower demoralization and anxiety after one year. As hypothesized, results emphasized the importance of interpersonal relationships when coping with cancer. Although only a small group of patients struggled with relatedness, low perceived relatedness was a strong predictor for demoralization across all tumor stages. Moreover, findings also allow for the conclusion of attachment avoidance as an underlying factor for these associations. Yet, results of the path model confirm the hypothesis only for the relationship between death anxiety and existential distress, which was mediated by attachment avoidance, but not for perceived relatedness. Still, considering the relational aspects constituting death anxiety and the relationship between the avoidant male patient and his therapist described in the qualitative study, the assumption of causal relation between attachment avoidance and relatedness is justified. Attachment avoidance proved to be a stable patient characteristic, which was strongly associated with existential distress but did not change over time. Therefore, patients' attachment may either be a source of persistent vulnerability or a protective factor against the distress caused by cancer. Taking into account the present evidence, psychosocial interventions at the end of life should provide patients with a therapeutic alliance that is tailored to patients' individual dependency needs. This way, therapists and other health care providers could create an environment, in which patients may reflect on their mortality and unfold distressing concerns or painful emotions. Such an environment may support the exploration of patients' fears at the end of life – often closely linked to relational issues – while at the same time fostering resources like high death acceptance or attachment security.

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# Appendix A: Full-text publications

## Publication 1: Characterizing death acceptance

**Philipp, R.**, Mehnert, A., Lo, C., Müller, V., Reck, M., & Vehling, S. (2019). Characterizing death acceptance among patients with cancer. *Psycho-Oncology*, 28(4), 854–862. https://doi.org/10.1002/pon.5030

## Publication 2: Perceived relatedness, death acceptance, and demoralization

**Philipp, R.**, Mehnert, A., Müller, V., Reck, M., & Vehling, S. (2020). Perceived relatedness, death acceptance, and demoralization in patients with cancer. *Supportive Care in Cancer*, *28*, 2693–2700. https://doi.org/10.1007/s00520-019-05088-2

## Publication 3: Role of attachment avoidance in a longitudinal mediation model predicting existential distress

**Philipp, R.**, Mehnert-Theuerkauf, A., Koranyi, S., Härter, M., & Vehling, S. (2021). The role of attachment avoidance: A longitudinal mediation model predicting existential distress in patients with advanced cancer. *Psycho-Oncology*. Advance online publication. https://doi.org/10.1002/pon.5640

## Publication 4: Psychoanalytical perspective on understanding a terminally ill patient with avoidant attachment

**Philipp, R.**, Krüger, A., Lindner, R., Mehnert-Theuerkauf, A., & Vehling, S. (2021). *Understanding avoidant attachment in a patient with terminal cancer: A psychoanalytic perspective.* [Manuscript submitted for publication]. Department of Medical Psychology, University Medical Center Hamburg-Eppendorf

## Appendix B: Complete list of publications

References in each category are sorted chronologically, starting with the most recent publication. The publications highlighted in grey are part of this dissertation.

### Peer-reviewed journal articles

**Philipp, R.**, Lebherz, L., Thomalla, G., Härter, M., Appelbohm, H., Frese, M., & Kriston, L. (2021). Psychometric properties of a patient-reported outcome set in acute stroke patients. *Brain and Behavior*. Advance online publication. https://doi.org/10.1002/brb3.2249

**Philipp, R**., Kalender, A., Härter, M., Bokemeyer, C., Oechsle, K., Koch, U., & Vehling, S. (2021). Existential distress in patients with advanced cancer and their caregivers: Study protocol of a longitudinal cohort study. *BMJ Open*, 11(4), e046351. https://doi.org/10.1136/bmjopen-2020-046351

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Koranyi, S., **Philipp, R.**, Quintero Garzón, L., Scheffold, K., Schulz-Kindermann, F., Härter, M., Rodin, G., & Mehnert-Theuerkauf, A. (2020). Testing the treatment integrity of the Managing Cancer and Living Meaningfully psychotherapeutic intervention for patients with advanced cancer. *Frontiers in Psychology*, 11, 561997. https://doi.org/10.3389/fpsyg.2020.561997

Mehnert, A., Koranyi, S., **Philipp, R.**, Scheffold, K., Kriston, L., Lehmann-Laue, A., Engelmann, D., Vehling, S., Eisenecker, C., Oechsle, K., Schulz-Kindermann, F., Rodin, G., & Härter, M. (2020). Efficacy of the Managing Cancer and Living Meaningfully (CALM) individual psychotherapy for patients with advanced cancer: A single-blind randomized controlled trial. *Psycho-Oncology*. https://doi.org/10.1002/pon.5521

**Philipp, R.**, Mehnert, A., Müller, V., Reck, M., & Vehling, S. (2020). Perceived relatedness, death acceptance, and demoralization in patients with cancer. *Supportive Care in Cancer*, 28, 2693–2700. https://doi.org/10.1007/s00520-019-05088-2

**Philipp, R.**, Kriston, L., Kühne, F., Härter, M., & Meister, R. (2019). Concepts of metacognition in the treatment of patients with mental disorders. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 1–11.

Conrad, M., Engelmann, D., Friedrich, M., Scheffold, K., **Philipp, R.**, Schulz-Kindermann, F., . . . Koranyi, S. (2019). Die Erfassung der Paarkommunikation bei Patienten mit einer fortgeschrittenen Krebserkrankung: Validierung einer deutschen Version der Couple Communication Scale (CCS) [Assessment of Couples' Communication in Patients with Advanced Cancer: Validation of a German

Version of the Couple Communication Scale (CCS)]. *Psychotherapie Psychosomatik medizinische Psychologie*, 69(5), 189–196. https://doi.org/10.1055/a-0583-4837

**Philipp, R.**, Mehnert, A., Lo, C., Müller, V., Reck, M., & Vehling, S. (2019). Characterizing death acceptance among patients with cancer. *Psycho-Oncology*, 28(4), 854–862. https://doi.org/10.1002/pon.5030

Scheffold, K., **Philipp, R.**, Vehling, S., Koranyi, S., Engelmann, D., Schulz-Kindermann, F., Härter, M., & Mehnert-Theuerkauf, A. (2019). Spiritual well-being mediates the association between attachment insecurity and psychological distress in advanced cancer patients. *Supportive Care in Cancer*. https://doi.org/10.1007/s00520-019-04744-x

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## Conference talks

**Philipp, R.**, Mehnert-Theuerkauf, A., & Vehling, S. (2021). Mediating role of attachment avoidance in predicting existential distress in patients with advanced cancer, 22nd World Congress of Psycho-Oncology & Psychosocial Academy (IPOS), May 27th to 29th, 2021, Kyoto, Japan (Online conference).

Kissane, D., Mehnert-Theuerkauf, A., Grassi, L., Chun-Kai, F., **Philipp, R.**, Vehling, S. (2021). Demoralization in cancer care: diagnosis and treatment, Workshop, *The relationship between attachment avoidance, perceived relatedness and demoralization in patients with advanced cancer*, 22nd World Congress of Psycho-Oncology & Psychosocial Academy (IPOS), May 27th to 29th, 2021, Kyoto, Japan (Online conference).

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## Poster presentations

**Philipp, R.,** Mehnert, A., & Vehling, S. (2018). Perceived relatedness in patients with early and advanced cancer, 17th Annual Congress of the Arbeitsgemeinschaft für Psychoonkologie (PSO), October 8th to 10th, 2018, Munich, Germany.

## Appendix C: Curriculum Vitae

Lebenslauf wurde aus datenschutzrechtlichen Gründen entfernt

## Eidesstattliche Versicherung

Ich versichere ausdrücklich, dass ich die Arbeit selbständig und ohne fremde Hilfe verfasst, andere als die von mir angegebenen Quellen und Hilfsmittel nicht benutzt und die aus den benutzten Werken wörtlich oder inhaltlich entnommenen Stellen einzeln nach Ausgabe (Auflage und Jahr des Erscheinens), Band und Seite des benutzten Werkes kenntlich gemacht habe.

Ferner versichere ich, dass ich die Dissertation bisher nicht einem Fachvertreter an einer anderen Hochschule zur Überprüfung vorgelegt oder mich anderweitig um Zulassung zur Promotion beworben habe.

Ich erkläre mich einverstanden, dass meine Dissertation vom Dekanat der Medizinischen Fakultät mit einer gängigen Software zur Erkennung von Plagiaten überprüft werden kann.

Hamburg, den 07.07.2021

Unterschrift: ......................................................................