The relationship between death anxiety and severity of mental illnesses

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Objectives. Death anxiety has been implicated theoretically and empirically in mental health and has been proposed to be a transdiagnostic construct. However, it has largely been investigated in relation to specific disorders, such as obsessive–compulsive disorder. Few studies have assessed the relationship between death anxiety and psychopathology using heterogeneous treatment-seeking clinical samples.

Methods. In the present study, the relationships between death anxiety and broad markers of psychopathology were explored in 200 treatment-seeking participants with various diagnosed mental disorders.

Results. Across the sample, death anxiety was a strong predictor of psychopathology, including the number of lifetime diagnoses, medications, hospitalizations, distress/impairment, depression, anxiety, and stress. This relationship was not accounted for by neuroticism. Large to very large correlations were also consistently found between a measure of death anxiety and the symptom severity of 12 disorders. Neither meaning in life nor attachment style moderated the associations between death fears and psychopathology.

Conclusions. The findings reveal a strong relationship between death anxiety and psychopathology across numerous disorders, further supporting the transdiagnostic role of fears of death. As such, clinical implications revolve around the potential need for innovative treatments which address death fears directly, in order to produce long-term improvements in mental health. However, experimental research is needed to ascertain causal relationships.

Practitioner points

- Across a large treatment-seeking sample, death anxiety was a significant predictor of broad psychopathology, including distress and number of lifetime diagnoses.
- Across 12 different disorders, death anxiety significantly predicted symptom severity.
- Results may suggest the need for novel treatments which specifically target fears of death.
- Due to the correlative design, future experimental research is needed to establish causal relationships with increased confidence.

Throughout human history, death has been featured extensively in art, literature, myth, and cultural and religious practices (Becker, 1973). Fear of death has been shown to shape a myriad of adverse psychological phenomena (Stolorow, 1979). Whereas some

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individuals may develop adaptive coping mechanisms to deal with such fears (e.g., building meaningful relationships), death anxiety may also drive maladaptive coping strategies, such as avoidance (of reminders of mortality, such as by avoiding hospitals, or of situations with the potential to result in death, such as flying or heights; Yalom, 2008). As such, death anxiety has been considered a transdiagnostic construct, underpinning the development and maintenance of numerous mental disorders (Iverach, Menzies, & Menzies, 2014).

Increasing evidence supports this claim. For example, findings suggest that death reminders increase anxious responding among spider phobics, and social avoidance among participants high in social anxiety (Strachan et al., 2007). Significant correlations have also been found between death anxiety and symptoms of separation anxiety (Caras, 1995), hypochondriasis (Noyes, Stuart, Longley, Langbehn, & Happel, 2002), post-traumatic stress disorder (Martz, 2004), depression (Thorson & Powell, 2000), and disordered eating (Le Marne & Harris, 2016).

However, although the aforementioned studies provide suggestive evidence for the role of death anxiety in a number of disorders, few studies have used clinical, treatment-seeking samples, making generalizations to individuals with diagnoses premature. As a result, the relationship between fears of death and symptomology among those with an actual disorder remains largely unclear, and the relevance of such findings to implications for treatment is premature at best. Recently, Menzies and Dar-Nimrod (2017) examined the responses of 171 treatment-seeking participants diagnosed with obsessive–compulsive disorder (OCD), revealing moderate to large correlations between death anxiety and OCD severity, distress/impairment, and the number of hospitalizations, medications, and diagnoses across the lifespan. Importantly, these relationships all remained significant after controlling for neuroticism, suggesting the unique relationship between fears of death and mental health. In an experimental study, reminders of death significantly increased compulsive cleaning behaviours among OCD washers (Menzies & Dar-Nimrod, 2017). Again, notably, neuroticism did not significantly predict cleaning behaviours, further highlighting the specific role of death anxiety in driving clinically relevant behaviours, above and beyond trait anxiety. Outside of OCD, the relationship between death anxiety and psychopathology has not been explored using treatment-seeking samples.

Given the dearth of research with clinical populations, the role of moderators of death anxiety among these individuals is also a viable area for exploration. That is, if such moderators can be identified, this may inform future interventions aiming to address death anxiety, by offering new possible treatment targets which may potentially serve to reduce the impact of death fears. Relevant literature hints at such potential moderators, identifying two leading candidates.

Firstly, the attachment system, which drives us to seek security from others or to utilize our self-reliance in order to deal with real or symbolic threats, appears to attenuate existential concerns (Mikulincer, 2018). Reminders of death have been shown to increase various attachment-related behaviours, such as commitment to one’s partner (Florian et al., 2002), desire for physical proximity to other participants in a group discussion (Wisman & Koole, 2003), and mental accessibility of words associated with attachment stability (e.g., ‘hug’; Mikulincer, Birnbaum, Woddis, & Nachmias, 2000). Further, a secure attachment style (i.e., feeling comfortable in intimate relationships and with both acting independently and relying on others) appears to be associated with lower fears of death, relative to ambivalent (seeking high intimacy with others while fearing that others may not wish for closeness) or avoidant (feeling uncomfortable with others’ desires for intimacy) attachment styles (Florian & Mikulincer, 1998; Mikulincer, Florian, & Tolmacz, 1990).
Secondly, there is preliminary evidence for the relationship between death anxiety and meaning in life, defined as one’s sense that their life has a satisfying or clear purpose (Steger, Frazier, Oishi, & Kaler, 2006). Routledge and Juhl (2010) found that reminders of death selectively increased death anxiety among individuals with lower meaning in life, while such reminders did not produce exacerbated death fears among participants who reported higher meaning in life. Additionally, when mildly depressed participants were given the opportunity to bolster their buffers against death anxiety, they reported an increased belief that life is meaningful (Simon, Arndt, Greenberg, Solomon, & Pyszczynski, 1998). Further, one recent systematic review of psychological interventions among patients with advanced cancer concluded that treatments which focused on creating meaning appeared to have a beneficial effect on death attitudes and general well-being (Grossman, Brooker, Michael, & Kissane, 2018), building further support for the idea that meaning in life may protect individuals from existential dread.

Thus, the present study aimed to explore whether, consistent with Iverach et al.’s (2014) proposal that fears of death underpin numerous mental health conditions, death anxiety is associated with psychopathology across various disorders. It further aimed to examine whether attachment style and meaning in life moderate the relationship between death anxiety and psychopathology within clinical samples. As such, it was hypothesized that (1) death anxiety is positively correlated with broad markers of psychopathology and disorder severity, and (2) meaning in life and attachment style moderate these relationships, such that greater sense of meaning and a secure attachment style reduce the size of the relationship between death anxiety and psychopathology.

**Method**

**Participants**

At a large psychology practice in Sydney, Australia, 242 patients identified with a non-psychotic diagnosis were invited to participate in the study by assessing clinicians not involved in the study; 200 agreed to participate (126 women). This sample size was determined by power analysis, which revealed that in order to detect a small to moderate correlation ($r = .20$) across the sample, 200 participants would be necessary to obtain power to the level of 0.8. The sample consisted of Caucasian (92.5%), Asian (6.5%), and Indigenous Australian (0.5%) participants. The mean age was 33.76 years ($SD = 11.51$; Range: 18–65 years), and mean years of education were 15.70 ($SD = 1.99$; Range: 11–21 years). The Anxiety and Related Disorders Interview Schedule for DSM-5, Lifetime Version (ADIS-5L; Brown & Barlow, 2014), was administered to these participants, and all participants satisfied criteria for a current diagnosis on the ADIS-5L. The study was approved by the University of [de-identified] Human Research Ethics Committee.

**Materials and procedure**

Apart from the ADIS-5L, which was administered by a clinical psychologist with postgraduate training, specific ADIS training, and 33 years of clinical and research experience, the measures were completed in a single testing session on an iPad Air 2, using the Qualtrics survey software. Participants completed a core set of questionnaires, as well as disorder-specific questionnaires, as detailed below. The following measures were administered to all participants:
Measure of death anxiety

**Multidimensional Fear of Death Scale (MFODS).** A 42-item measure of death anxiety with eight 7-item subscales (Hoelter, 1979). Each item is rated on a 5-point scale. A higher score on any subscale indicates lower death anxiety. The MFODS subscales have shown good psychometric properties (Walkey, 1982), and the internal consistency of the overall scale in the current sample was excellent ($\alpha = .97$). Internal consistency was high for seven of eight subscales (Fear of the Dying Process: $\alpha = .94$; Fear of the Dead: $\alpha = .90$; Fear of Being Destroyed: $\alpha = .87$; Fear for Significant Others: $\alpha = .85$; Fear of Conscious Death: $\alpha = .89$; Fear for Body After Death: $\alpha = .91$; and Fear of Premature Death: $\alpha = .89$). Internal consistency was poor for one subscale, Fear of the Unknown ($\alpha = .31$), due to one item: ‘I am afraid of meeting my creator’. When this item was deleted, Cronbach’s alpha for this subscale rose to $\alpha = .81$. As such, this item was deleted before conducting all analyses reported below.

Clinically relevant measures

**The ADIS-5L.** The ADIS-5L is a structured clinical interview designed to establish both lifetime and current diagnoses for mood, anxiety, and related disorders (Brown & Barlow, 2014). It uses the criteria of *The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-5; American Psychological Association, 2013). It was used in the present study to determine participants’ eligibility and to establish number and severity of diagnoses, and overall distress/impairment.

**Depression Anxiety Stress Scales-21 (DASS-21).** A 21-item measure with three 7-item subscales measuring: Depression (e.g., hopelessness), Anxiety (e.g., autonomic arousal), and Stress (e.g., difficulty relaxing; Lovibond & Lovibond, 1995). Each item is rated on a 4-point scale, with higher scores indicating greater distress. The DASS-21 has shown good internal consistency among clinical samples (Page, Hooke, & Morrison, 2007), and internal consistency of the overall scale ($\alpha = .96$) and its subscales ($\alpha = .93$ to .95) were high in the present sample.

Potential moderators

**Adult attachment styles (AAS).** This questionnaire assesses attachment styles by asking participants to select one of three paragraphs, based on which is most descriptive of their own feelings in relationships (e.g., ‘I find it relatively easy to get close to others and am comfortable depending on them, and having them depend on me’, ‘I am somewhat uncomfortable being close to others… I am nervous when anyone gets too close’ and ‘I find that others are reluctant to get as close as I would like’, to reflect secure, avoidant, or anxious/ambivalent styles, respectively; Hazan & Shaver, 1987). The AAS has shown acceptable test–retest reliability (Kirkpatrick & Hazan, 1994).

**The meaning in life questionnaire (MLQ).** A 10-item measure with two 5-item subscales: presence of meaning, which assesses one’s sense that one’s life is meaningful (e.g., ‘My life has a clear sense of purpose’), and search for meaning, which measures one’s drive to find meaning (e.g., ‘I am looking for something that makes my life feel...’
meaningful'; Steger et al., 2006). Items are rated on 7-point scales, with a higher score indicating a greater sense of (or strive for) meaning. The MLQ has shown good internal consistency and validity (Steger et al., 2006), and internal consistency was excellent for both subscales (α = .93 and .90, respectively).

The Big Five Aspects Scales (BFAS). A 20-item Neuroticism subscale of the BFAS was administered, in order to assess the possibility that neuroticism may be a potential confound. The BFAS has shown good psychometric properties (DeYoung, Quilty, & Peterson, 2007), and the internal consistency in the current study was good (α = .82).

Self-report measures of disorder severity
Self-report questionnaires developed for specific disorders were administered to relevant participants. Each participant completed one measure for each of their current diagnoses. For example, a participant with both OCD and social anxiety disorder would complete the core measures reported above, in addition to two questionnaires specific to these disorders. Across the sample, 49.5% of participants had more than one current diagnosis and thus completed more than one disorder-specific measure. Only disorder-specific measures that were completed by 10 or more participants have been reported below:

Agoraphobia scale (AS). A 20-item self-report measure of agoraphobia severity (Öst, 1990). A score for ‘anxiety’ and ‘avoidance’ is calculated separately, with anxiety for each item being rated on a 5-point scale, and avoidance rated on a 3-point scale. Evidence indicates that the AS is valid, reliable, and sensitive to treatment effects (Öst). Internal consistency in the current sample was excellent for both the overall measure (α = .99) and the two subscales (α = .97 and .99).

Beck Depression Inventory (BDI-II). A widely used 21-item self-report measure assessing severity of depressive symptoms (Beck, Steer, & Brown, 1996). Each item is rated on a 4-point scale. The BDI-II has shown strong psychometric properties (Segal, Coolidge, Cahill, & O’Riley, 2008), and internal consistency was excellent in the current sample (α = .98).

Claustrophobia Questionnaire (CLQ). A 26-item self-report measure of anxiety towards commonly feared situations in claustrophobia. Each item is rated on a 5-point scale. There is evidence for its reliability and validity (Radomsky, Rachman, Thordarson, Mclsaac, & Teachman, 2001), and the internal consistency of both subscales (α = .98) and the overall measure (α = .99) for the current sample was excellent.

The Dysmorphic Concern Questionnaire (DCQ). A 7-item self-report measure of symptoms of body dysmorphic disorder (BDD; Oosthuizen, Castle, & Lambert, 1998). The DCQ has been shown to have good reliability, validity, and internal consistency among a clinical sample (Jorgensen, Castle, Roberts & Groth-Marnat, 2001). In the current sample, the internal consistency was excellent (α = .92).
**Generalized Anxiety Disorder-7 (GAD-7).** A 7-item measure assessing symptom severity in GAD on a 4-point scale (Spitzer, Kroenke, Williams, & Löwe, 2006). There is evidence for its reliability and validity (Löwe et al., 2008), and internal consistency was excellent in the current study (α = .94).

**Health Anxiety Inventory (HAI).** An 18-item measure which assesses symptoms of illness anxiety disorder. Items are rated on a 4-point scale. There is evidence for its reliability, internal consistency, and sensitivity to treatment effects (Salkovskis, Rimes, Warwick, & Clark, 2002), with excellent internal consistency in the current sample (α = .97).

**Panic Disorder Severity Scale – Self Report form (PDSS-SR).** A 7-item measure of panic disorder severity, with items rated on a 5-point scale (Shear et al., 1997). The PDSS-SR has shown good test–retest reliability, internal consistency, and sensitivity to treatment effects (Houck, Spiegel, Shear, Rucci, & Stat, 2002), and internal consistency in the present study was excellent (α = .94).

**Severity of Alcohol Dependence Questionnaire (SADQ).** A 20-item self-report measure of alcohol dependence (Stockwell, Murphy, & Hodgson, 1983). Each item is rated on a 4-point scale. There is evidence for its construct validity and test–retest reliability (Stockwell, Sitharan, McGrath, & Lang, 1994). Internal consistency in the current sample was excellent (α = .98).

**Social Interaction Anxiety Scale (SIAS).** A 20-item measure assessing cognitive, behavioural, and affective symptoms of social anxiety disorder (Mattick & Clarke, 1998). Each item is rated on a 5-point scale. There is evidence for its reliability and validity (Heimberg, Mueller, Holt, Hope, & Leibowitz, 1992), and excellent internal consistency was found in the present sample (α = .94).

**The Somatic Symptom Scale-8 (SSS-8).** An 8-item measure of somatic symptom burden, used to assess those with a somatic symptom disorder (Kurlansik & Maffei, 2016). Each item is rated on a 5-point scale. The validity and reliability of the SSS-8 has been demonstrated previously (Gierk et al., 2014), and internal consistency in the current sample was good (α = .89).

**The Vancouver Obsessive Compulsive Inventory (VOCI).** A self-report measure of obsessive–compulsive behaviour using six subscales: Contamination (12 items), Checking (six items), Obsessions (12 items), Hoarding (seven items), Just Right (12 items), and Indecisiveness (six items). Each item is rated on a 5-point scale. The VOCI has shown good psychometric properties (Thordarson et al., 2004). Internal consistency in the current study was excellent for both the overall measure (α = .97) and the individual subscales (α = .92 to .98).
Statistical analyses
In order to test the first hypothesis, severity of psychopathology was operationalized using a composite score created from seven broad markers of mental health: number of lifetime diagnoses, current medications, prior hospitalizations, the clinician’s ADIS-5L judgement of overall distress/impairment, and DASS-21 depression, anxiety, and stress scores. These variables were collapsed into a composite score in order to capture the broad construct of psychopathology as well as reduce the number of statistical tests and, consequently, the risk of type I error. When these seven variables were combined, with a higher composite score indicating more severe psychopathology (e.g., higher number of lifetime diagnoses and hospitalizations), the internal consistency was excellent ($\alpha = .91$). Similarly, in order to examine the severity of specific disorders, a composite severity score was created for each disorder. As above, this decision was made with the aim of reducing capitalization on chance. This composite disorder severity score was created using an average of the clinician’s ADIS-5L severity rating and the score on the self-report measure for each disorder, both of which were standardized. Notably, the correlations between the self-report and clinician estimates of severity for each disorder were large, with the exception of body dysmorphic disorder, which was medium-to-large (see Table 3).

For the six specific disorders for which there were 20 or more participants, the Bonferroni procedure was used to control the family-wise error rate at .05 ($p_{\text{critical}} < .008$) for the associations between MFODS scores and psychopathology. For the six correlations for which there were <20 participants, given the small sample size, these correlations are reported to allow the effect size to be displayed. We caution the reader against using the significance indications in such small samples.

In order to test the second hypothesis exploring potential moderators, the relevant continuous variables (e.g., MFODS, search for meaning) were standardized, and an interaction term was created (e.g., between standardized search for meaning and MFODS scores). In the first step, the relevant moderator and MFODS scores were entered. Moderation was then examined when the interaction term was entered in the second step. This method was used to produce all betas and changes in $R^2$ reported below for the moderation analyses. For the three stepwise hierarchical regressions conducted to examine moderation, the family-wise error rate was controlled at .05 ($p_{\text{critical}} < .017$).

Results
Characteristics of the sample are reported in Tables 1 and 2. The MFODS scores of the sample were significantly lower than community norms (e.g., $M = 150.20$, Sharma, Monsen, & Gary, 1997), indicating higher death anxiety among the present sample relative to normative data. The mean MFODS scores for each disorder are reported in Table 3.

Primary analyses
As hypothesized, across the sample, a significant and very large correlation was found between total MFODS and the composite measure of psychopathology ($r = -.79$). Additional analyses were conducted to assess whether these correlations could in fact be explained by a third variable: Neuroticism. A stepwise hierarchical regression analysis revealed that MFODS scores significantly predicted psychopathology, after controlling for neuroticism, $\beta = -.686$, $t(193) = -15.12$, $p < .001$, $\Delta R^2 = .05$. Further, as previous findings reported strong relationships between death anxiety and psychopathology in
patients with OCD (Menzies & Dar-Nimrod, 2017), a sensitivity analysis was conducted on
the same correlations using only participants who had never been diagnosed with OCD. This
analysis was conducted in order to ensure that the significant findings were not solely
due to the large proportion of individuals in the sample with OCD. The correlations
between total MFODS and all of the aforementioned markers of psychopathology
remained significant (all $p’s < .001$).

Similar results were obtained when examining the relationship between fear of death
and the severity of specific disorders. As hypothesized, for all six disorders with more than
20 participants (i.e., OCD, GAD, Major Depressive Disorder, Social Anxiety Disorder,
Panic Disorder, and Illness Anxiety Disorder), large, significant correlations were found
between composite severity scores and death anxiety. Further, for the remaining six
disorders for which there were 20 or fewer participants (i.e., Alcohol Use Disorder,
Somatic Symptom Disorder, Persistent Depressive Disorder, Agoraphobia, Claustropho-
bria, and Body Dysmorphic Disorder) the size of the correlations between composite
disorder severity appeared to have similar magnitude as the aforementioned disorders,
with the possible exception of Body Dysmorphic Disorder (see Table 3).

### Table 1. Summary of sample characteristics ($N = 200$)

<table>
<thead>
<tr>
<th>Measure</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADIS-5L severity of principle diagnosis</td>
<td>5.90</td>
<td>1.61</td>
</tr>
<tr>
<td>ADIS-5L distress/impairment</td>
<td>6.09</td>
<td>1.61</td>
</tr>
<tr>
<td>Current no. of medications</td>
<td>1.15</td>
<td>1.18</td>
</tr>
<tr>
<td>Total no. of medications</td>
<td>1.98</td>
<td>1.98</td>
</tr>
<tr>
<td>No. of hospitalizations</td>
<td>0.61</td>
<td>0.94</td>
</tr>
<tr>
<td>Current ADIS-5L diagnoses</td>
<td>1.74</td>
<td>0.96</td>
</tr>
<tr>
<td>Total ADIS-5L diagnoses</td>
<td>3.14</td>
<td>2.03</td>
</tr>
<tr>
<td>DASS-21 depression</td>
<td>7.58</td>
<td>6.03</td>
</tr>
<tr>
<td>DASS-21 anxiety</td>
<td>8.10</td>
<td>5.59</td>
</tr>
<tr>
<td>DASS-21 stress</td>
<td>9.52</td>
<td>5.74</td>
</tr>
<tr>
<td>MLQ search for meaning</td>
<td>20.85</td>
<td>5.45</td>
</tr>
<tr>
<td>MLQ presence of meaning</td>
<td>20.41</td>
<td>6.55</td>
</tr>
<tr>
<td>MFODS total score</td>
<td>113.89</td>
<td>39.90</td>
</tr>
</tbody>
</table>

Note. ADIS-5L = Anxiety and Related Disorders Interview Schedule for DSM-5 – Lifetime Version; DASS-21 = Depression Anxiety and Stress Scales; MFODS = Multidimensional Fear of Death Scale; A higher score on this measure indicates less death anxiety, while a lower score indicates higher death anxiety; MLQ = Meaning in Life Questionnaire.

Secondary analyses

Meaning in life

Two stepwise hierarchical regressions were used to explore the potential role of meaning
in life in moderating the relationship between death anxiety and psychopathology. The
presence of meaning significantly predicted the psychopathology composite, $\beta = -.143; t(193) = -3.59, p < .001, R^2 = .649$, whereas the search for meaning did not, $\beta = .016, p = .719, R^2 = .626$. The interactions between the presence of meaning
and MFODS in the first analysis and the search for meaning and MFODS in the second
analysis, entered in the second step of the analyses, were non-significant, $\beta = .054, p = .238, \Delta R^2 = .003$, and $\beta = .062, p = .156, \Delta R^2 = .004$ (respectively).
Attachment style
The results of the AAS indicated a roughly even distribution of attachment styles across the sample, with 65 (32.5%) participants reporting a secure attachment style, 71 reporting an avoidant attachment style (35.5%), and 64 (32%) reporting an anxious/ambivalent attachment style. Attachment style was dummy coded and dichotomized as ‘secure’ or ‘insecure’, the latter of which included both avoidant and anxious/ambivalent styles. In order to examine the second hypothesis, a stepwise hierarchical regression analysis was used to explore whether attachment style moderated the relationship between death fears and any markers of psychopathology. First, attachment style did not significantly predict the psychopathology composite, \( \beta = .081, p = .068, R^2 = .632 \). Also, the interaction between attachment style and MFODS, entered in the second step of the analyses, was non-significant, \( \beta = -.047, p = .596, \Delta R^2 = .001 \).

Analyses of individual variables
The pattern for the individual markers of psychopathology and disorder severity was largely similar to that obtained using the composite scores (see Supporting Information for these results reported in full). For example, when the seven individual markers of broad mental health were examined, all relationships with MFODS were large and significant, ranging from \( r = -.55 \) to \( r = -.75 \) (all \( p < .0001 \)). Further, regarding severity of specific
### Table 3. Summary of Pearson correlations between MFODS and disorder severity, and mean MFODS of the disorders (n = 200)

<table>
<thead>
<tr>
<th>Disorder</th>
<th>n</th>
<th>OCD (77)</th>
<th>GAD (43)</th>
<th>MDD (38)</th>
<th>SAD (34)</th>
<th>PD (23)</th>
<th>IAD (20)</th>
<th>SSD (17)</th>
<th>AUD (16)</th>
<th>PDD (15)</th>
<th>Agor. (13)</th>
<th>Claus. (10)</th>
<th>BDD (10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td></td>
<td>-.80</td>
<td>-.73</td>
<td>-.66</td>
<td>-.77</td>
<td>-.80</td>
<td>-.75</td>
<td>-.62</td>
<td>-.70</td>
<td>-.66</td>
<td>-.73</td>
<td>-.66</td>
<td>-.82</td>
</tr>
<tr>
<td>Correlation between self-report measures and ADIS-5L severity ratings</td>
<td></td>
<td>.62</td>
<td>.73</td>
<td>.82</td>
<td>.70</td>
<td>.69</td>
<td>.84</td>
<td>.85</td>
<td>.77</td>
<td>.80</td>
<td>.73</td>
<td>.72</td>
<td>.41</td>
</tr>
<tr>
<td>Mean MFODS (SD)</td>
<td>108.90 (41.41)</td>
<td>96.26 (40.36)</td>
<td>97.65 (33.37)</td>
<td>113.18 (47.41)</td>
<td>103.21 (39.94)</td>
<td>99.85 (35.14)</td>
<td>94.06 (33.47)</td>
<td>104.89 (38.29)</td>
<td>104.35 (28.76)</td>
<td>99.77 (40.88)</td>
<td>105.40 (49.54)</td>
<td>121.93 (29.72)</td>
<td></td>
</tr>
</tbody>
</table>

Note. ADIS-5L = Anxiety and Related Disorders Interview Schedule for DSM-5 – Lifetime Version; Agor. = Agoraphobia; AUD = Alcohol Use Disorder; BDD = Body Dysmorphic Disorder; Claus. = Claustrophobia; GAD = Generalised Anxiety Disorder; IAD = Illness Anxiety Disorder; MDD = Major Depressive Disorder; MFODS = Multidimensional Fear of Death Scale (a higher score on this measure indicates less death anxiety, while a lower score indicates higher death anxiety); OCD = Obsessive-Compulsive Disorder; PD = Panic Disorder; PDD = Persistent Depressive Disorder; SAD = Social Anxiety Disorder; SSD = Somatic Symptom Disorder.
disorders, when the self-report measures and clinician’s rating of severity were examined independently, large correlations were found between death anxiety and ratings of severity for disorders for which there were the minimum number of participants. However, two of the moderation analyses did find barely significant indications for the moderating role of the presence of meaning for two individual markers of psychopathology. Given these mixed findings, more empirical work is needed to clarify whether this variable moderates the relationship between death anxiety and mental health.

Discussion

Consistent with the first hypothesis, large, positive correlations were found between death anxiety and a composite measure of psychopathology as well as each of its specific components: the number of lifetime diagnoses, medication usage, prior hospitalizations, clinician ratings of distress/impairment, depression, anxiety, and stress. Importantly, these relationships remained significant after controlling for neuroticism, consistent with prior research (Menzies & Dar-Nimrod, 2017). Moreover, for all six disorders with more than 20 participants, significant and large correlations were found between death anxiety and the severity of disorder symptoms. Further, for the remaining six disorders for which there were 20 or fewer participants, the correlations between severity and death fears appeared to be equally substantial, although moderate caution should be used when extrapolating from these latter findings due to small samples. Taken together, these findings support the assertion that death anxiety is a transdiagnostic construct (Iverach et al., 2014) and are consistent with previous findings supporting the relationships between death fears and the severity of specific disorders (OCD; Menzies & Dar-Nimrod, 2017).

Contrary to predictions, although presence of meaning in life predicted psychopathology, neither attachment style nor meaning in life moderated the relationship between death anxiety and psychopathology. This is inconsistent with previous findings that attachment style moderates death anxiety among non-clinical participants (Florian & Mikulincer, 1998), and preliminary evidence of a relationship between death fears and perceived meaning in life among non-clinical (Routledge & Juhl, 2010) and mildly depressed participants (Simon et al., 1998). One potential explanation for the failure to observe either moderating relationship in the present study is the high levels of death fear in the current sample. While adequate meaning in life and a secure attachment style may protect the average individual from fears of death, it is possible that these may prove insufficient in the face of clinical levels of death anxiety. It is also possible that among people with mental health problems, the attenuating effects of meaning in life and attachment styles may be reduced, consistent with the view that psychopathology may be a result of ineffective ‘buffers’ which would ordinarily protect an individual from the dread of death (Pyszczynski & Taylor, 2016). Further, the absence of clinical samples in the aforementioned studies may also explain this difference in findings. For example, among the quarter of the current sample with a diagnosis of a depressive disorder, their mean depression score on the BDI-II was almost double the mean of the mildly depressed sample of undergraduate students in Simon et al.’s study. Thus, it is possible that for individuals with high levels of death fears or moderate to severe levels of psychopathology, as found in the present sample, attachment style and meaning in life are insufficient in influencing the relationship between death anxiety and mental health. In addition, the stark differences in methodological design between the current correlational study and
the experimental manipulations employed by previous studies, which measured attachment-related behaviours (Mikulincer et al., 2000; Wisman & Koole, 2003) and meaning in life (Simon et al., 1998) only after priming participants with reminders of death (or a control topic), could further explain the non-significant findings regarding meaning in life and attachment style in the present study. Although these two variables did not appear to be significant moderators in the present study, future research may benefit from examining other potential moderators among a clinical population. For instance, self-esteem has been implicated in previous relevant studies, with findings demonstrating that reminders of death selectively reduce hope (Wisman & Heflick, 2016) and increase negative affect (Routledge et al., 2010) among individuals with low self-esteem, but not those with high self-esteem. As such, self-esteem could prove a viable direction for future research.

The limitations of the current study should also be considered. Notably, the correlational design limits the drawing of conclusions regarding causality. As such, the direction of causality is not clear, and it is possible that an additional variable is the primary driver of both death anxiety and psychopathology. Second, the use of the AAS, a categorical and single-item measure of attachment, may also explain the lack of significant findings related to attachment style as a moderator. Future research may benefit from utilizing more dimensional measures, such as the Revised Adult Attachment Scale (Collins, 1996), which may capture the nature of attachment style more effectively. Third, the small number of participants recruited for some disorders may limit the ability to draw conclusions regarding the relevance of death anxiety on the specific symptomology of these particular conditions. However, the striking similarities in the pattern and size of the associations between symptom severity and death fears suggest that, at present, there is no indication that death fears predict severity differently across different disorders. Further research may aim to delve into some of these specific disorders further, exploring whether the correlations’ magnitude remains with larger samples.

Having acknowledged these limitations, the strengths of the present study are notable. First, these results are consistent with the claim that death anxiety is a transdiagnostic construct (Iverach et al., 2014). Second, while one could argue that a third variable may in fact be driving both death anxiety and psychopathology, the measurement of neuroticism in the present study served to rule out one obvious potential candidate. Importantly, the findings that the correlation between death anxiety and psychopathology remained significant after controlling for neuroticism may add some weight to the importance of the unique relationship between death fears and mental health. Third, the associations found appear more consistent, and at least as strong, as those found for some other proposed transdiagnostic constructs, such as perfectionism (Limburg, Watson, Hagger, & Egan, 2017), and rumination (de Jong-Meyer, Beck, & Riede, 2009; McLaughlin, Wisco, Aldao, & Hilt, 2014). Fourth, the novel use of the composite measure of psychopathology, which appeared to be a valid and internally consistent measure of broad mental health, enriches the way that research may measure the multifaceted construct of psychopathology, particularly among individuals with diverse mental health problems. Fifth, unlike previous studies, the present study used a large, treatment-seeking, clinical sample, made up of individuals with many different diagnoses, extending upon previous studies which have typically focused on individual disorders. Lastly, to the best of our knowledge, this is the first study to assess the role of attachment style and meaning in life as potential moderators of the relationship between death anxiety and psychopathology among a treatment-seeking sample.
The results of the present study offer some support for Iverach et al.’s (2014) claim that death anxiety is transdiagnostic. As such, in line with this argument, it is possible that innovative treatments targeting death anxiety are needed to produce long-term improvements in mental health. Standard treatments, which fail to address the patient’s deep-rooted existential fears, may in fact contribute to the ‘revolving door’ of mental health conditions (p. 590). That is, it is common for patients to receive treatment for one anxiety-related disorder yet return with a different condition later in life. Although few intervention studies have specifically addressed death anxiety in the context of mental health problems, death fears have been treated in other contexts. One recent meta-analysis (Menzies, Zuccala, Sharpe, & Dar-Nimrod, 2018) explored the effects of psychosocial interventions on death anxiety across 15 randomized controlled trials. The findings revealed that cognitive behaviour therapy (CBT) was particularly effective, producing significant reductions in death anxiety relative to control conditions and other therapies. Despite the absence of clinical samples, this result suggests that CBT may be useful in addressing death fears and their resulting psychopathology. Of course, further research is needed to establish the efficacy of treatments targeting death anxiety in improving symptomology among clinical samples, above and beyond the effects of standard treatments.

Concluding comments
Despite theoretical accounts arguing that death anxiety is a transdiagnostic construct, few empirical studies have explored this claim using clinical samples. The present study included 200 treatment-seeking individuals with a diagnosed mental illness revealing large correlations between death anxiety and psychopathology. In addition, for 12 disorders, large correlations were found between death anxiety and ratings of disorder severity. Notably, neither meaning in life nor attachment style moderated the effect of death fears on psychopathology. These findings support the notion that death anxiety is a transdiagnostic construct, associated with various mental health conditions. Given the correlational design of the present study, future experimental research is needed to explore whether reminders of death impact disorder-relevant behaviours (e.g., avoidance, checking) among participants diagnosed with a mental illness.

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References


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**Supporting Information**

The following supporting information may be found in the online edition of the article:

**Appendix S1.** Additional analyses and individual correlations.