Abstract

**Background:** Growing research indicates that death anxiety is implicated in many mental health conditions. This increasing body of evidence highlights a need for scalable, accessible, and cost-effective psychological interventions to reduce death anxiety.

**Aims:** The present study outlines the results of a phase I trial for one such treatment: *Overcome Death Anxiety* (ODA). ODA is the first CBT-based online intervention for fears of death, and is an individualised program requiring no therapist guidance.

**Methods:** A sample of 20 individuals with various mental health diagnoses commenced the ODA program. Death anxiety was assessed at baseline and at post-intervention. Depression, anxiety, and stress were also measured.

**Results:** In total, 50% (10/20) reached the end of the program and completed post-treatment questionnaires. Of these, 60% (6/10) showed a clinically reliable reduction in their overall death anxiety, and 90% (9/10) showed a reduction on at least one facet of death anxiety. There were no adverse events noted.

**Conclusions:** ODA appears to be a safe and potentially effective treatment for death anxiety. The findings have provided initial evidence to support a randomised controlled trial using a larger sample, to further examine the efficacy of ODA.

*Keywords:* Death anxiety, transdiagnostic, online, internet, cognitive behaviour therapy

Overcoming Death Anxiety:
A Phase I Trial of an Online CBT Program in a Clinical Sample

**1.** **Introduction**

Death anxiety has been argued to be a transdiagnostic construct, underlying various mental health conditions (Iverach et al., 2014). Fears of death have been shown to be highly associated with the severity of numerous disorders, including post-traumatic stress disorder (Martz, 2004), obsessive-compulsive disorder (OCD; Menzies et al., 2020), eating disorders (Le Marne & Harris, 2016), social anxiety disorder, alcohol use disorder and depressive disorders (see further, Menzies et al., 2019). Experimental studies also suggest that death anxiety plays a causal role in multiple disorders. For example, in community samples, reminders of death increase avoidance behaviours among the socially anxious and spider phobic (Strachan et al., 2007), and increased food restriction and striving for thinness in women (Goldenberg et al., 2005). Among treatment-seeking clinical samples, reminders of death have been shown to exacerbate compulsive handwashing in OCD patients (Menzies & Dar-Nimrod, 2017), and bodily checking, threat perception, and reassurance seeking in patients with panic disorder, somatic symptom disorder, or illness anxiety disorder (Menzies et al., 2021a).

 Despite the growing evidence of the role of death anxiety in psychiatric disorders, standard treatments typically fail to address this construct. For example, gold standard treatments for anxiety disorders typically centre on disproving specific threat estimates (e.g., the likelihood of a spider bite or severe illness), rather than addressing the underlying mortality concerns. This failure to target potentially underlying issues, such as death anxiety, has been argued to contribute to the “revolving door” of mental health services (Iverach et al., 2014; p. 590), in which individuals may present to treatment with one condition, only to return to treatment at a later time with a different disorder. That is, if death anxiety underlies many mental health conditions, then treatments which specifically target this construct may be essential to prevent symptom recurrence and the emergence of additional mental health problems, improving long-term wellbeing. Fortunately, a recent meta-analysis demonstrates that death anxiety can be significantly improved, with cognitive behavioural therapy (CBT) proving most efficacious (Menzies et al., 2018). Despite this promising finding, and the clear relevance of death anxiety to a multitude of mental health conditions, no evidence-based self-help treatments for this construct currently exist.

Online self-help interventions have been put forth as a solution to the growing mental health needs of a booming global population (Fairburn & Patel, 2014; McCall et al., 2018). If death anxiety plays a role in many psychiatric presentations, then developing an online treatment will allow services to meet the needs of a large group of patients. This need for increased treatment availability has been particularly heightened during COVID-19, due to the surge of mental health problems posed by the pandemic (Menzies & Menzies, 2020; Torales et al., 2020), and home confinement. Results from meta-analyses reveal that online interventions produce a moderate effect size across a range of mental health variables (Barak et al., 2008), and can produce comparable effects to face-to-face interventions (Reger & Gahm, 2009). Thus, given the role of death anxiety in numerous mental health conditions, online interventions may be an ideal method of delivering accessible treatments for this transdiagnostic construct.

**1.1 The Current Study**

The present trial aimed to examine the safety and potential efficacy of an online CBT program for death anxiety, Overcome Death Anxiety (ODA; Menzies et al., 2021b), in a clinical sample. ODA consists of seven CBT-based modules, including cognitive challenging and exposure therapy. The primary aim of ODA is to produce reliable and clinically significant reductions in death anxiety amongst users, while being free from harm.

**2. Material and Method**

**2.1 Participants**

Participants were recruited from a waitlist of a large psychological clinic in Sydney, Australia. The inclusion criteria were: 1) at least 18 years of age, 2) a current mental health diagnosis based on a structured diagnostic interview, 3) regular access to the internet and email, 4) functional written and spoken English, and 5) high death anxiety (as indicated by scoring at least one standard deviation below the community mean on the Multidimensional Fear of Death Scale [< 118], Sharma et al., 1998). Exclusion criteria were: 1) having undergone CBT treatment in the last six months, 2) currently experiencing a psychotic illness, (3) severe symptoms of depression, as indicated by a total score above 19 on the Patient Health Questionnaire-9, and above 1 on the item that assesses suicidality. The final sample consisted of 20 participants. The study flow is presented in Figure 1, and demographic and diagnostic details of the sample are presented in Table 1. The most common current diagnoses in the sample were OCD (60%), illness anxiety disorder (45%), and generalized anxiety disorder (35%). Ethics approval was obtained by the Human Research Ethics Committee at The University of Sydney [2019/171] and The University of Technology Sydney [ETH19-4468], and the research conformed to the Declaration of Helsinki. Written informed consent was obtained from all participants.The clinical trial was registered a priori on the Australian and New Zealand Clinical Trials Registry (ACTRN12619000384156).[[1]](#footnote-1)

10 completed CLFD-R, DASS-21, PHQ-9

32 completed ADIS-5L and expressed interest in study

**Module Completion**

19 completed Module 1
16 completed Module 2
15 completed Module 3
14 completed Module 4
11 completed Module 5
10 completed Module 6
10 completed Module 7

6 completed post-treatment feedback questionnaires

3 completed post-treatment qualitative telephone interview

**Ineligible for study (n = 6)**

4 had lower death anxiety than required (MFODS >118)
1 had severe depressive symptoms (PHQ-9 >19)
1 reported suicidal ideation

29 gave consent and completed PHQ-9 and MFODS

23 met all inclusion criteria and were given access to ODA

20 commenced ODA and completed
CLFD-R, DASS-21, PHQ-9

3 did not commence ODA

**Figure 1.** Flow chart of study participation.
*Note:* ADIS-5L = Anxiety and Related Disorders Interview Schedule for DSM-5: Lifetime Edition; CLFD-R = Collett-Lester Fear of Death Scale – Revised; MFODS = Multidimensional Fear of Death Scale; PHQ-9 = Patient Health Questionnaire.

|  |
| --- |
| Table 1*Demographic and diagnostic characteristics of the sample* |
| Variable | n | % |
| Gender |  |  |
|  Male | 8 | 40% |
|  Female | 12 | 60% |
| Marital status |  |  |
|  Single/never married | 6 | 30% |
|  De facto | 3 | 15% |
|  Married | 11 | 55% |
|   | *M* | *SD* |
| Age | 36.10 | 8.01 |
| Education (years) | 15.85 | 1.53 |
| MFODS | 92.20  | 16.02 |
| No. current medications | 0.70 | 0.47 |
| ADIS-5L distress/impairment | 5.75 | 0.91 |
| Current diagnoses  | 1.60 | 0.68 |
| Lifetime diagnoses | 3.15 | 0.81 |
| *Note.* ADIS-5L = Anxiety and Related Disorders Interview Schedule for DSM-5: Lifetime Edition; MFODS = Multidimensional Fear of Death Scale. |

**2.2 Measures**

A range of valid and reliable measures were administered:

***2.2.1 Pre-screening questionnaires***

The Anxiety and Related Disorders Interview Schedule – Lifetime Edition (ADIS-5L; Brown & Barlow, 2014) is a structured diagnostic interview used to determine eligibility in the current study and to establish diagnoses.

The Multidimensional Fear of Death Scale (MFODS; Hoelter, 1979) isa 42-item measure of death anxiety. It was used in the current study to determine eligibility, with participants needing to score below 118, indicating high death anxiety. Notably, a lower score on the MFODS indicates *higher* death anxiety. The MFODS was selected for this pre-screening stage given its comprehensive length, and given that norms have previously been established for clinical samples with various mental illnesses (e.g., Menzies et al., 2019).

The Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001) is a 9-item measure of depression symptoms. It was used to determine eligibility, as well as to monitor participant safety throughout the online program.

***2.2.2 Primary Outcome***

The Collett-Lester Fear of Death Scale-Revised (CLFD-R; Lester, 1990) is a 32-item measure which assesses death anxiety on four subscales: Death of Self (e.g., “how it will feel to be dead”), Dying of Self (e.g., “the physical degeneration involved in a slow death”), Death of Others (e.g., “The loss of someone close to you”), and Dying of Others (e.g., “Watching them suffer from pain”). Unlike the MFODS, the CLFD-R has previously been shown to be responsive to change (Zuccala et al., 2018). The CLFD-R was therefore selected as the primary outcome measure, whereas the MFODS was selected for the purpose of establishing eligibility and to allow comparisons with other clinical samples.

***2.2.3 Secondary Outcomes***

Two secondary outcomes were selected. First, the mean satisfaction score on the single item question “Overall, how satisfied were you with the program?”, with a response scale ranging from 0 (“not satisfied at all”) to 10 (“completely satisfied”). Second, the proportion of participants who experienced an adverse event. For the purposes of the present study, an adverse event was defined as any of the following: 1) a significant worsening in depression scores on the PHQ-9, meeting the clinical cut-off; 2) endorsing ‘more than half the days’ or ‘nearly every day’ on item nine of the PHQ-9, which assesses suicidality, and reporting active suicidal ideation; 3) a self-harm or suicide attempt, or 4) a hospitalisation.

***2.2.4 Other Measures***

The Depression Anxiety Stress Scales-21 (DASS-21; Lovibond & Lovibond, 1995) is a 21-item measure which assesses depression, anxiety, and stress, across three subscales.

A 19-item evaluative measure was created for the present study, to assess perceptions of treatment length, clarity, efficacy, and usability.

**2.3 Procedure**

To determine eligibility, the ADIS-5L was administered by a senior clinical psychologist with extensive experience conducting structured diagnostic interviews. For participants who met diagnostic criteria for a disorder, the PHQ-9 and MFODS were completed, to ensure eligibility criteria were met. Eligible participants were then given access to ODA, in which they completed the CLFD-R and the DASS-21 at the commencement of treatment. Participants had up to five months to progress through the ODA program. This timeframe was selected given that previous researchers trialing online programs of similar length have selected access periods ranging from four to six months (McCall et al., 2018; McCall et al., 2019). Due to the standalone nature of the program, participants were not contacted by research staff until they had reached the end of ODA, unless their PHQ-9 scores indicated they were at risk. The PHQ-9 was emailed to participants each week throughout the treatment to monitor wellbeing and adverse events. This email was sent at the start of each week, irrespective of which module the user was currently completing, and simply contained a link to the PHQ-9, with no explicit reminder or encouragement about completing the program itself. At the conclusion of the last module, the CLFD-R and the DASS-21 were completed. Participants who reached the end of the program were also emailed the treatment satisfaction and evaluative questionnaires. Upon completion, a telephone interview was conducted with available participants to elicit qualitative feedback.

***2.3.1 Structure of ODA***

 ODA consists of the following seven modules:

 **Part 1: Introduction.** This module introduces the program and the rationale for addressing fears of death. Users are also introduced to the virtual therapist (i.e., the first author) who will accompany them throughout the program, via pre-recorded video and audio presentations.

 **Part 2: Thinking Exercises.** This module introduces the cognitive model of emotion and 10 cognitive errors (e.g., fortune-telling). It includes various interactive exercises, such as matching 10 beliefs about death to a respective cognitive error, which must be completed before the user proceeds.

 **Part 3: Challenging Your Thinking.** This module explains how to challenge unhelpful thoughts about death. It is heavily individualised, as users are presented with five beliefs about death they have previously personally endorsed (e.g., “life is too short”). They are then guided through challenging each of these beliefs using seven standard cognitive challenging prompts. After attempting each exercise, they are presented with sample answers for that specific belief written by the research team, to provide corrective feedback.

 **Part 4: Creating Your Model.** The fourth module focuses on psychoeducation regarding how avoidance and related behaviours maintain anxiety. This section also creates an individualised diagrammatic formulation for the user, based on their responses to dropdown lists. Thus, each user is presented with their own unique model which outlines how their own death anxiety is being maintained.

 **Part 5: Exposure.** This module introduces the rationale for exposure therapy. Participants have the opportunity to select a situation to face which they have previously reported that they would avoid. ODA then creates an individualised exposure task for the user. Participants must complete three exposure tasks successfully before proceeding to the next module

 **Part 6: Living Life to the Fullest.** This module centres on increasing meaning in life, through values-based activities. This is based on theoretical arguments that treatments for death anxiety should include strategies for improving quality of life (Furer et al., 2007), and experimental evidence suggesting that meaning in life buffers death anxiety (e.g., Routledge & Juhl, 2010).

 **Part 7: Relapse Prevention.** The final section briefly reviews the central components of the program, and outlines strategies to prevent relapse (e.g., recognising the difference between a lapse and relapse, and anticipating periods when the individual may be more vulnerable to stress).

In addition to these seven modules, ODA also includes ‘reflection tasks’ and ‘expansion tasks’ throughout the program. Reflection tasks involve the presentation of a quote, video, or song exploring death; the users are prompted to write a response to reflection questions before proceeding with the next component. In contrast, expansion tasks are optional tasks which the user does not have to complete in order to proceed. This is due to the length of the materials recommended as expansion tasks (e.g., films, books, podcast interviews). These reflection and expansion tasks are scattered throughout ODA to offer alternative perspectives on death using more creative approaches, such as through media or novel perspectives from philosophers or writers. More details about the ODA program are outlined in BLINDED.

**2.4 Analytic Plan**

 Given the sample size, a Reliable Change Index (RCI) score was calculated for the primary outcome measure (i.e., CLFD-R) for each participant who completed the program. This was based on CLFD-R standard deviation and alpha coefficients reported in Mooney and O’Gorman (2001). RCIs ±1.96 were considered to represent a reliable change (Jacobson et al., 1984). The percentage of participants who made a clinically reliable improvement as per the RCI was calculated and reported for both the overall CLFD-R, and its subscales.

**3. Results**

**3.1 Primary Outcome**

Results from the 10 participants who completed the program indicated that 60% made a clinically reliable improvement on the total CLFD-R (i.e., RCI > 1.96), and 90% improved on at least one subscale. Specifically, when the subscales were examined individually, 70% of completers reported a clinically reliable improvement on Death of Self, 60% on Dying of Self and Dying of Others, and 50% on Death of Others. No participant experienced a clinically reliable deterioration on any of the CLFD-R subscales. Pre- and post-intervention scores on the CLFD-R, PHQ-9, and DASS-21 are presented in Table 2.

|  |
| --- |
| Table 2*Pre-treatment and post-treatment data*  |
| Measures | Baseline |  | Post |
|  | Entire sample(*n* = 20) | Non-completers(*n* = 10) | Completers (*n* = 10) |  | Completers(*n* = 10) |
| PHQ-9 | 7.55 (5.66) | 7.60 (6.08) | 7.50 (5.54) |  | 5.83 (4.75) |
| CLFD-R |  |  |  |  |  |
|  Death of Self | 27.45 (8.41) | 25.90 (8.72) | 29.00 (8.23) |  | 20.30 (7.41) |
|  Dying of Self | 26.95 (9.12) | 25.20 (9.84) | 28.70 (8.47) |  | 21.20 (6.37) |
|  Death of Others | 33.30 (5.45) | 32.90 (5.84) | 33.70 (5.31) |  | 26.20 (6.55) |
|  Dying of Others | 27.00 (6.23) | 25.00 (6.18) | 29.00 (5.91) |  | 21.40 (8.85) |
|  Total | 114.70 (19.52) | 109.00 (17.47) | 120.40 (20.67) |  | 89.10 (24.67) |
| DASS-21 Depression | 12.70 (9.54) | 15.40 (10.46) | 10.00 (8.17) |  | 7.00 (5.91) |
| DASS-21 Anxiety | 11.80 (9.47) | 13.60 (12.47) | 10.00 (5.16) |  | 6.20 (3.58) |
| DASS-21 Stress | 23.00 (11.40) | 23.20 (11.82) | 22.80 (11.59) |  | 17.80 (8.35) |
| *Note.* Post-treatment data for PHQ-9 only available for *n* = 6. Standard deviation in parentheses. CLFD-R = Collett-Lester Fear of Death Scale – Revised; DASS-21 = Depression Anxiety Stress Scales-21; PHQ-9 = Patient Health Questionnaire. |

**3.2 Secondary Outcomes**

 No participant experienced an adverse event, with not even one experiencing increased depressive symptomology (based on the PHQ-9) across the study. On the single item satisfaction measure, responses indicated a mean satisfaction score of 8.0 out of 10 (*SD* = 1.41, range: 7 - 10). Other evaluative feedback data are presented in Table 3. This feedback was largely positive. For example, all six users who provided feedback agreed that the program was effective, and that they would recommend it to others. However, all six users also agreed that they needed more treatment. Two of the six users reported that they preferred clinician-delivered treatment. No user reported that any other treatment program had helped more than ODA. Post-completion telephone interviews verified that not one participant interviewed had received any individual therapy since commencing the ODA program.



**3.3 Additional analyses**

A total of 10 (50%) participants reached the end of the program. Mann-Whitney U tests were conducted to explore whether baseline differences in participants may have predicted attrition. The results indicated that none of the baseline variables predicted whether or not participants completed all modules: Age (*U* = 35.5, *P =*.280), years of education (*U* = 39.5, *P =*.436), number of current diagnoses (*U* = 36.0, *P =*.315), number of current medications (*U* = 40.0, *P =*.481), overall distress (*U* = 39.0, *P =*.436), PHQ-9 (*U =* 47.5*, P =*.850), DASS-21 Depression (*U =* 33.5*, P =*.218) , Anxiety (*U =* 49.5*, P =*.971), or Stress (*U =* 48.0*, P =*.912), MFODS (*U =* 35.5*, P =*.280), CLFD Death of Self (*U =* 39.5*, P =*.436), Dying of Self (*U =* 39.0*, P =*.436), Death of Others (*U =* 42.0*, P =*.579), or Dying of Others (*U =* 26.0*, P =*.075).

Exploratory analyses were conducted to examine clinically reliable changes in DASS-21 scores, based on standard deviation and alpha coefficients reported in Henry and Crawford (2005). A total of 60% of participants made a reliable improvement on at least one subscale; 40% experienced reduced Stress, 30% reduced Anxiety, and 10% reduced Depression. No participant experienced a reliable deterioration on any of these subscales.

Similarly, clinically reliable changes in PHQ-9 scores were assessed, using normative data reported in Kroenke et al. (2001). Among the six users who completed the PHQ-9 at post-intervention, two (33%) made a reliable improvement, and the remaining four showed no reliable change. Additional analyses were conducted to examine the PHQ-9 scores among those who did not reach the end of ODA, using the last PHQ-9 score obtained from the weekly administration of this measure. Six participants completed the PHQ-9 at some timepoint after the initial pre-screening (*M* = 2.83 weeks since commencing ODA; range 1 - 7 weeks) but did not complete the program. The results indicated that none of these participants made a reliable change on the PHQ-9, indicating neither meaningful improvement nor deterioration.

**4. Discussion**

 The current trial sought to examine the efficacy and safety of the first online CBT-based treatment for death anxiety. Half of the participants who commenced the program completed all modules, despite no support from a clinician. No baseline differences were found between those who completed the program and those who did not, based on the measured variables. In addition, 60% of users who completed post-treatment questionnaires demonstrated a clinically reliable improvement in their overall death anxiety, with 90% improving on at least one of four facets. Importantly, there were no adverse events reported. Further, 60% of users made a clinically reliable improvement on at least one DASS-21 subscale. Lastly, evaluative feedback from those who completed suggested that the program was seen as user-friendly, accessible, and helpful.

The limitations of the current study should be noted. First, it was not possible in the current trial to collect feedback or post-treatment questionnaires from individuals who did not complete the program. As a result, the reasons for treatment dropout remain unclear. This is particularly important as we had no reports of adverse events, but cannot exclude the possibility that some people who did not complete experienced a worsening of symptoms. However, the finding that there was no clinically reliable deterioration in PHQ-9 scores among those who did not reach the end of the program may allay this concern somewhat. It is also possible that some users discontinued treatment due to making improvements early in the program. Future studies of ODA are needed to collect primary outcome data among those who discontinue, and to ascertain the reasons for users’ dropout. Second, the absence of a control group limits conclusions surrounding the impact of the program itself, as it remains possible that improvements in death anxiety were related to extraneous causes. However, given that the data were collected during the COVID-19 pandemic, at a time when death anxiety is more salient than normal, it appears unlikely that scores would have reduced naturally over this time. That is, cross-sectional studies have revealed higher scores on death anxiety measures during the pandemic (e.g., Akyol Guner et al., 2021) compared to previous community norms (e.g., Stevens et al., 1980); these comparisons are supported by longitudinal studies revealing an increase in death anxiety during COVID-19 (e.g., Javed et al., 2021). Third, the fact that participants were recruited from a waitlist for individual therapy leaves open the possibility that some improvements were attributable to receiving other therapy during the trial. However, data from post-treatment telephone interviews with completers indicate that none of them had undergone any external therapy since commencing the ODA program.

Having noted the limitations, the strengths of the study should be acknowledged. First, the present study represents the world’s first trial of an online, evidence-based treatment for death anxiety. The finding that most program completers achieved a reliable improvement in their death anxiety at post-treatment indicates the potential efficacy of the treatment. This is particularly impressive given the unique nature of death anxiety itself. Unlike most phobias, death is a “given” of existence, raising the question of whether fears of death can be treated at all. Whereas standard CBT treatments typically rely on challenging the client’s threat estimates (e.g., the likelihood of a plane crash or illness), such approaches cannot be used for a fear of death, given that death is guaranteed. Despite this, the improvements in death anxiety found in the present study indicate that fears of death can be ameliorated. While this is consistent with prior meta-analytic findings (Menzies et al., 2018), most of those studies had been in non-clinical samples. Not one study included in that meta-analysis had targeted individuals with mental health conditions. Thus, the fact that death anxiety was effectively reduced in a group of people presenting for mental health treatment, with a range of disorders and a high level of comorbidity, is particularly promising. The inclusion of individuals with pronounced death anxiety and diagnosed mental health difficulties is a clear strength of the study. The current program also adds to the existing literature by producing changes in death anxiety in the absence of individual guidance from a therapist, making it the first of its kind.

Second, the completion rate of 50% suggests a significant strength of the program. While on the one hand this completion rate might appear low, it is, in fact, comparatively high for a standalone program with no therapist support. A review of clinical trials of online programs found an average completion rate of just 26% for such standalone treatments (Richards & Richardson, 2012). The current results indicate that ODA achieves around double the standard rate of program completions. Further, the absence of adverse events or deterioration in death anxiety scores in this clinical sample is also a significant strength. This result suggests that the treatment program appears safe to deliver as a standalone treatment, at least among those who do not report severe depression or active suicidality (as those were excluded from participation). Further research is necessary to confirm its safety among individuals with more significant depression than those in the current sample. Last, the reduction in indicators related to psychopathology (i.e., stress, anxiety, and/or depression) among most participants further supports the notion that death anxiety, the sole focus of ODA, may be causally related to mental health struggles (Iverach et al., 2014).

However, it is also possible that these improvements are due to participants learning transdiagnostic CBT skills, which may generalise to concerns other than anxiety around death (e.g., negative thoughts about oneself, or fears of negative evaluation). Future research may seek to compare ODA with a general online CBT program which does not address death, establish what proportion of treatment benefits can be explained by the specific focus on death anxiety. Future research may also benefit from examining engagement with the online program (e.g., time spent on modules, number of expansion tasks completed, length of responses to written exercises including reflection tasks). This may allow for investigation into the impact of engagement on treatment outcome, and whether further strategies are required to increase engagement.

**4.1 Conclusions**

In sum, the results from the current trial suggest that the ODA program is a promising treatment for death anxiety. Its standalone and fully automated nature ensures it is cost-effective, accessible, and highly scalable. Future research should seek to test the efficacy of ODA using a larger scale RCT, with longer follow-up of participants, including those who discontinue the program. In addition, further research is needed to examine whether the improvements in death anxiety produced by the program also lead to an improvement in broader mental health. On this note, the current data are encouraging, with most completers experiencing an improvement in either depression, anxiety, or stress. Future research should also examine whether improvements in death anxiety reduce the likelihood of relapse, in line with theoretical predictions (e.g., Iverach et al., 2014).

**Acknowledgments:** We are deeply grateful to each of the participants who took part in this trial.

**Conflicts of interest:** None.

**Funding Statement:** This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

References

**Akyol Guner, T., Erdogan, Z., & Demir, I.** (2021). The effect of loneliness on death anxiety in the elderly during the COVID-19 pandemic. *OMEGA - Journal of Death and Dying.* 1-21. doi:10.1177/00302228211010587

**Barak, A., Hen, L., Boniel-Nissim, M., & Shapira, N.** (2008). A comprehensive review and a meta-analysis of the effectiveness of internet-based psychotherapeutic interventions. *Journal of Technology in Human Services, 26*, 109-160. doi:10.1080/15228830802094429

**Beard, C., Hsu, K.J., Rifkin, L.S., Busch, A.B., & Björgvinsson, T**. (2016). Validation of the PHQ-9 in a psychiatric sample. *Journal of Affective Disorders, 193,* 267-273. doi:10.1016/j.jad.2015.12.075

**Brown, T.A., Di Nardo, P.A., Lehman, C.L., & Campbell, L.A.** (2001). Reliability of *DSM-IV* anxiety and mood disorders: Implications for the classification of emotional disorders. *Journal of Abnormal Psychology, 110*(1)*,* 49-58. doi:10.1037//0021-843x.110.1.49

**Fairburn, C.G., & Patel, V.** (2014). The global dissemination of psychological treatments: A road map for research and practice. *The American Journal of Psychiatry, 171*, 495-498. doi:10.1176/appi.ajp.2013.13111546

**Furer, P., Walker, J.R., & Stein, M.B.** (2007). *Treating health anxiety and fear of death: A practitioner’s guide.* New York: Springer.

**Goldenberg, J.L., Arndt, J., Hart, J., & Brown, M.** (2005). Dying to be thin: The effects of mortality salience and body-mass-index on restricted eating among women. *Personality and Social Psychology Bulletin, 31,* 1400-1412. doi:10.1177/0146167205277207

**Henry, J.D., & Crawford, J.R.** (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology, 44,* 227-239. doi:10.1348/014466505X29657

**Iverach, L., Menzies, R.G., & Menzies, R.E.** (2014).  Death anxiety and its role in psychopathology: Reviewing the status of a transdiagnostic construct. *Clinical Psychology Review, 34,*580-593. doi:10.1016/j.cpr.2014.09.002

**Jacobson, N.S., Follette, W.C., & Revenstorf, D.** (1984). Psychotherapy outcome research: Methods for reporting variability and evaluating clinical significance. *Behavior Therapy, 15,* 336-352. doi:10.1016/S0005-7894(84)80002-7

**Javed, S., Bangash, S.S., Sharf, N., Samman, B., Alvi, T.** (2021). Death anxiety in haemodialysis patients before and during the outbreak of COVID-19: A longitudinal study. *Life & Science, 2*(4), 135-138. doi:0.37185/LnS.1.1.140

**Le Marne, K.M., & Harris, L.** (2016). Death anxiety, perfectionism and disordered eating. *Behaviour Change, 33,* 193-211. doi:[10.1017/bec.2016.11](https://doi.org/10.1017/bec.2016.11)

**Martz, E.** (2004). Death anxiety as a predictor of posttraumatic stress levels among individuals with spinal cord injuries. *Death Studies, 28,* 1-17. doi:10.1080/07481180490249201

**McCall, H.C., Richardson, C. G., Helgadottir, F. D., & Chen, F. S.** (2018). Evaluating a web-based social anxiety intervention among university students: Randomized controlled trial. *Journal of Medical Internet Research, 20*(3), e91. doi:10.2196/jmir.8630

**McCall, H.C., Helgadottir, F.D., Menzies, R.G., Hadjistavropoulos, H.D., & Chen, F.S.** (2019). Evaluating a web-based social anxiety intervention among community users: Analysis of real-world data. *Journal of Medical Internet Research, 21*(1). doi:10.2196/11566

**Menzies, R.E., & Dar-Nimrod, I.** (2017). Death anxiety and its relationship with obsessive-compulsive disorder. *Journal of Abnormal Psychology, 126,* 367-377. doi:10.1037/abn0000263

**Menzies, R.E., & Menzies, R.G.** (2020). Death anxiety in the time of COVID-19: Theoretical explanations and clinical implications. *The Cognitive Behaviour Therapist, 13.* doi:[10.1017/S1754470X20000215](https://doi.org/10.1017/S1754470X20000215)

**Menzies, R.E., Sharpe, L., & Dar-Nimrod, I.** (2019). The relationship between death anxiety and severity of mental illnesses.*British Journal of Clinical Psychology, 58,* 452-467. doi:10.1111/bjc.12229

**Menzies, R.E., Sharpe, L., & Dar-Nimrod, I.** (2021a). The effect of mortality salience on bodily scanning behaviors in anxiety-related disorders. *Journal of Abnormal Psychology, 2*(999)*.* doi:10.1037/abn0000577

**Menzies, R.E., Sharpe, L., Helgadóttir, F.D., & Dar-Nimrod, I.** (2021b). Overcome Death Anxiety: The development of an online CBT program for fears of death. *Behaviour Change, 38*(4), 235-249. doi:10.1017/bec.2021.14

**Menzies, R.E., Zuccala, M., Sharpe, L., & Dar-Nimrod, I**. (2018). The effects of psychosocial interventions on death anxiety: A meta-analysis and systematic review of randomised controlled trials. *Journal of Anxiety Disorders, 59,*64-73. doi:10.1016/j.janxdis.2018.09.004

**Menzies, R.E., Zuccala, M., Sharpe, L., & Dar-Nimrod, I.** (2020). Subtypes of obsessive-compulsive disorder and their relationship to death anxiety. *Journal of Obsessive-Compulsive and Related Disorders, 27,* 100572. doi:10.1016/j.jocrd.2020.100572

**Mooney, D.C., & O’Gorman, J.G.** (2001). Construct validity of the Revised Collett-Lester Fear of Death and Dying Scale. *OMEGA – Journal of Death and Dying, 43*(2), 157-173. doi:10.2190/13PW-QPFY-B1PB-2AQA

**Page, A.C., Hooke, G.R., & Morrison, D.L.** (2007). Psychometric properties of the Depression Anxiety Stress Scales (DASS) in depressed clinical samples. *British Journal of Clinical Psychology, 46*(3)*,* 283-297. doi:10.1348/014466506X158996.

**Reger, M. A., & Gahm, G. A.** (2009). A meta-analysis of the effects of internet- and computer-based cognitive-behavioral treatments for anxiety. *Journal of Clinical Psychology, 65*(1), 53-75. doi:10.1002/jclp.20536

**Richards, D., & Richardson, T.** (2012). Computer-based psychological treatments for depression: A systematic review and meta-analysis. *Clinical Psychology Review, 32*, 329-342. doi:10.1016/j.cpr.2012.02.004

**Routledge, C., & Juhl, J.** (2010). When death thoughts lead to death fears: Mortality salience increases death anxiety for individuals who lack meaning in life. *Cognitive and Emotion, 24,* 848-854. doi:10.1080/02699930902847144.

**Sharma, S., Monsen, R.B., & Gary, B.** (1998). Comparison of attitudes toward death and dying among nursing major and other college students. *OMEGA - Journal of Death and Dying*, 34, 219-232. doi:[10.2190/WNX7-NFYA-MFE9-Y064](https://doi.org/10.2190/WNX7-NFYA-MFE9-Y064)

**Strachan, E., Schimel, J., Arndt, J., Williams, T., Solomon, S., Pyszczynski, T., et al.** (2007). Terror mismanagement: Evidence that mortality salience exacerbates phobic and compulsive behaviours. *Personality and Social Psychology Bulletin, 22,* 1137-1151. doi:10.1177/0146167207303018

**Stevens, S.J., Cooper, P.E., & Thomas, L.E.** (1980). Age norms for Templer’s death anxiety scale. *Psychological Reports, 46,* 205-206. doi:10.2466/pr0.1980.46.1.205

**Torales, J., O’Higgins, M., Castaldelli-Maia, J. M., & Ventriglio, A.** (2020). The outbreak of COVID-19 coronavirus and its impact on global mental health. *International Journal of Social Psychiatry, 66*(4), 317–320. doi: [10.1177/0020764020915212](https://doi.org/10.1177/0020764020915212)

**Walkey, F.H.** (1982). The multidimensional fear of death scale: An independent analysis. *Journal of Consulting and Clinical Psychology, 50*(3)*,* 466-467. doi:[10.1037/0022-006X.50.3.466](https://psycnet.apa.org/doi/10.1037/0022-006X.50.3.466)

**Zuccala, M., Menzies, R.E., Hunt, C., & Abbott, M.** (2019). A systematic review of the psychometric properties of death anxiety self-report measures. *Death Studies, 6,* 1-23. doi:10.1080/07481187.2019.1699203

1. <https://www.anzctr.org.au/Trial/Registration/TrialReview.aspx?id=376875&isReview=true> [↑](#footnote-ref-1)