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The effects of psychosocial interventions on death anxiety: A meta-analysis and systematic review of randomised controlled trials

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ABSTRACT

Death anxiety has been proposed as a transdiagnostic construct, underlying numerous mental disorders. Although it has been argued that treatments, which reduce death anxiety, are needed, research investigating the impact of interventions on death fears has produced mixed results. As such, the current meta-analysis aimed to examine the effect of psychosocial interventions on death anxiety. Overall, results from 15 randomised controlled trials suggested that psychosocial treatments produced significant reductions in death anxiety, with a small to medium effect size ($g = .45$). Intervention type (death education vs. therapy) did not significantly moderate the effect of intervention on death anxiety ($g = -.47$). However, therapy type was a significant moderator of treatment efficacy ($g = -1.39$). Cognitive Behaviour Therapy was found to be particularly efficacious, producing significant reductions in death anxiety relative to control ($g = 1.7$), whereas other therapies did not ($g = .20$). The number of treatment sessions and baseline death anxiety significantly moderated intervention efficacy, whereas the duration of the intervention, training of the interventionist, and clinical nature of the sample did not. Given the small number and generally low quality of the included studies, future research using more rigorous methodology, as well as clinical samples, is needed.

1. Introduction

The dread of death has appeared as a pervasive theme for as long as humans have recorded their history, frequently being featured in art, literature, and cultural and religious practices. (Becker, 1973; Eshbaugh & Henninger, 2013). Over a century ago, William James famously described the awareness of our own mortality as "the worm at the core" of human existence (1985/1902, p. 119). In a similar vein, Yalom (2008) proposes that death anxiety is at the heart of much of human distress. Whilst some individuals may manage to cope with fears of death in a positive and adaptive way (e.g., through living in the present moment and pursuing a meaningful existence), an inability to effectively cope with the dread of death may lead to paralysing fear, as well as the development of unhelpful coping mechanisms (e.g., Kastenbaum, 2000).

Across the last three decades, Terror Management Theory (TMT) has been the central theoretical approach underlying research into the impact of death anxiety on a wide array of phenomena (for a review, see Greenberg, 2012). TMT proposes that one's innate human instincts of self-preservation, coupled with the conscious awareness that death is inevitable, can produce overwhelming terror (Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989). Findings from hundreds of TMT studies to date (e.g., Arndt, Greenberg, Solomon, Pyszczynski, & Simon, 1997; Greenberg et al., 1992) have demonstrated the impact of thoughts of death on a wide range of behaviours, including aggression towards outgroups (McGregor et al., 1998), sun tanning (Routledge, Ardnt, & Goldenberg, 2004), obsessive-compulsive handwashing (Menzies & Dar-Nimrod, 2017) and financial spending intentions (Dar-Nimrod, 2012). Thus, evidence from TMT research has indicated that the awareness of our own mortality is a central factor explaining diverse areas of human behaviour.

Although TMT research has largely focused on exploring the role of death anxiety in everyday human behaviour, the findings also have relevant implications for mental health and clinical populations. Recently, Iverach, Menzies, and Menzies, (2014) have argued that death anxiety is a transdiagnostic construct, underpinning a multitude of mental illnesses, such as panic disorder (Schmidt, Lerew, & Trakowski, 1997), illness anxiety disorder (Furer, Walker, & Stein, 2007), obsessive-compulsive disorder (Menzies & Dar-Nimrod, 2017), and specific phobias (Marks, 1987). As such, some researchers have proposed that treatments focusing on reducing death anxiety may lead to overall symptom improvement (Furer et al., 2007; Iverach et al., 2014). A variety of different procedures have been proposed as a means of reducing death anxiety. These include cognitive and behavioural

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procedures, such as exposure therapy (e.g., Cautela, 1969; Hiebert, Furer, McPhail, & Walker, 2005), behavioural experiments (Kirk & Rouf, 2004; Silver, Sanders, Morrison, & Cowey, 2004) and cognitive reappraisal (e.g., Furer et al., 2007). Other treatments that have been argued to be effective include existential psychotherapy (Yalom, 1980) and death education programs, which typically aim to educate and expose health professionals to death-relevant information.

Despite this, research on the efficacy of interventions aiming to reduce death anxiety has been limited. To date, only one systematic review and one meta-analysis have been conducted on the topic. Maglio (1994) conducted a meta-analysis investigating the effects of death education programs on death anxiety. In contrast to the present study, the meta-analysis included non-randomised designs, as well as studies that only measured death anxiety post-intervention without accounting for baseline levels of death anxiety. As a result, Maglio's meta-analysis included 62 studies, involving both didactic death education programs (i.e., those primarily involving lectures and the delivery of factual information) and experiential (i.e., those focusing on roleplays and group discussion) death education interventions. Surprisingly, the findings of the meta-analysis suggested that, overall, participants who completed death education programs reported significantly higher death anxiety than participants in control conditions. In particular, death education programs using a didactic approach were found to increase death anxiety more so than did experiential programs. However, of the 62 included studies, 43 involved student samples with the remaining studies primarily using nurses or health professionals. That is, not a single study in Maglio's meta-analysis used a clinical sample, making the generalisability of the results to clinical populations, and their relevance to treatment, unclear.

In a recent systematic review by Grossman, Brooker, Michael, and Kissane (2018), the effects of psychotherapeutic interventions on death anxiety among adult patients with advanced cancer were examined. Although this review included nine studies, only two of those studies specifically measured death anxiety (rather than, for example, 'desire for hastened death', or general distress). Of those two, only one study utilised a pre-existing and validated measure of death anxiety. Thus, although the review concluded that interventions such as meaning-centered therapy or dignity therapy appear to be beneficial to wellbeing overall, the effectiveness of these treatments on ameliorating death fears specifically, remains unclear. Similarly, given the nature of the review's sample population (i.e., patients with advanced cancer), the generalisability of these findings to individuals without cancer remains limited.

The present study aimed to address these limitations, as well as the general absence of research on the topic, by conducting a meta-analysis of randomised clinical trials (RCTs) that have investigated the effects of psychosocial interventions on death anxiety in adults. Further, the study aimed to address the following research questions:

1 Overall, do psychological interventions lead to significant changes in death anxiety?
2 Do the effects of these interventions on death anxiety differ between clinical and non-clinical samples?
3 Do the effects of death education programs and therapeutically-oriented treatments (e.g., Cognitive Behaviour Therapy; CBT) on death anxiety differ?
4 Do CBT interventions produce significantly different changes in death anxiety compared to other types of treatment interventions (e.g., relaxation)?
5 Are the effects of interventions on death anxiety moderated by the number and duration of treatment sessions, or the training of the interventionist?

2. Method

2.1. Registration and literature search

The protocol for the present study was prospectively registered with PROSPERO[1] [CRD42017058994]. To identify studies for possible inclusion, a systematic search of the electronic databases PsycINFO, MEDLINE, and Web of Science was conducted for English language peer-reviewed articles using the search terms *death anxiety* and/or *fear of death*, intersected with *treatment, therapy,* and/or *intervention*. This search was conducted up until March 23rd, 2018.

2.2. Selection of studies and inclusion criteria

In order to be eligible for analysis, the following inclusion criteria were used: 1) participants must be adults, 2) a psychosocial intervention must be used, 3) pre- and post-treatment fear of death scores must be measured using a validated measure of death anxiety, 4) a control condition and random allocation of participants must be used, 5) the articles must be in English. Dissertations, abstracts, and conference presentations were excluded.

Overall, the search yielded 841 articles, of which 219 were duplicates (see Fig. 1). Step 1 had the first author (RM) screen the titles and abstracts for the remaining 622 studies to determine their relevance for inclusion. A second reviewer (MZ) reviewed all 622 of these studies, with excellent inter-rater reliability (Kappa = 0.832); disagreements were settled by consensus. A total of 581 papers were excluded on the basis of the title and abstract screening, as they were not considered to be an empirical study related to the effects of interventions on death anxiety outcome measures.

Step 2 involved the full text manuscripts of the remaining studies being reviewed independently by RM and MZ, in order to assess eligibility for inclusion more comprehensively. Again, the inter-rater reliability was excellent (Kappa = 0.847), and disagreements were settled by consensus. Twenty-seven articles were excluded due to not meeting inclusion criteria. Of these, nine studies lacked a control condition, and ten lacked random allocation of participants. Six studies featured a control condition and random allocation, but lacked sufficient relevant quantitative data for a meta-analysis. This left a total of 15 studies that were analysed in the meta-analysis. Fig. 1 outlines the process of study inclusion.

2.3. Data extraction & statistical analysis

To determine the effects of the interventions on death anxiety, means, standard deviations, and the number of participants in each condition were extracted from each study, both before and after treatment. For the papers that did not provide this information, mean change scores and either t-scores or F-values were used. For the six papers which included multiple outcome measures of death anxiety, solely the means for the Death Anxiety Scale (DAS; Templer, 1970) were included for analysis. This statistical approach of selecting a single outcome measure which appears to best represent the primary research question, has been commonly used in meta-analyses (e.g., Ahn, Ames, & Myers, 2012; Berkeley, Scruggs, & Mastropieri, 2009). The DAS was selected for two reasons: first, it is the most widely used measure of death anxiety in the field (Sharif Nia et al., 2014), and second, it was the one measure shared by all included studies featuring multiple outcome measures of fears of death. Finally, the authors of three studies were contacted in order to obtain data that had not been reported (Dadfar, Asgharnejad Farid, Lester, Atef Vahid, & Birashk, 2016; Lo et al., 2016; Vargo & Batsel, 1984). Statistical analyses for the meta-

[1] http://www.crd.york.ac.uk/PROSPERO/display_record.php?ID=CRD42017058994