Psychological Interventions for Death Anxiety Among Adults: An Umbrella Review

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Literature review: Psychological Interventions for Death Anxiety in Adults

Death is a natural and inevitable phenomenon. Anxiety associated with death is known as death anxiety and is considered to be a normal human experience (Furer & Walker, 2008). This experience is arguably unique to humans as we are the only species capable of the reflective and conceptual cognitive processes required to be aware of our mortality resulting in death anxiety (Becker, 1973). Hence while these cognitive abilities have been greatly advantageous in the progress of humankind it comes with the burden of being able to contemplate one's existence and the uncomfortable reality of its inescapable end (Becker, 1973).

Human beings' preoccupation with death can be traced back to the times of the ancient Greeks. It was Epicurus who pointed out that it is human beings' 'omnipresent fear of death' that is the eternal source of human misery (Yalom, 2008, p. 284). Since him, there have been many who have written on the phenomenon of death including philosophers such as Heidegger, Sartre and Hofstadter (Neimeyer, 2015). It has also been a subject of interest for Freud (1920) who named the death drive "thanatos" which he described as being one of two fundamental basic human instincts.

Theories of Death Anxiety

While many people can come to terms with the universal fact that everyone eventually dies, for some it is a source of anxiety (Strang, 2014). Many have sought to understand this unique form of anxiety.

Two Factor Theory of Death Anxiety

Templer's (1976) Two-Factor Theory of Death Anxiety was among the earliest theories on death anxiety that emerged. Templer proposed that the severity of death anxiety experienced by an individual is determined by two factors, one internal- an individual's overall psychological

health or wellbeing and the other external- an individual's personal experiences concerning death. Abdel-Khalek and Lester (2009) suggest that an individual's life experiences with respect to death might include health status, diseases, ailments, and somatic complaints. The Two-Factor Theory of Death Anxiety has provided a theoretical basis for the construction of instruments measuring death anxiety including the Death Anxiety Scale (DAS; Templer, 1970) and the Death Anxiety Inventory (DAI; Tomás-Sábado & Gómez-Benito, 2005).

Terror Management Theory

Among the theories proposed, Terror Management Theory has been cited as the principal theory in the research on death anxiety in the last few decades (Menzies, Zuccala, Sharpe, & Dar-Nimrod, 2018). The theory is based heavily on the work of cultural anthropologist Ernest Becker (1973) who postulated that humans are able to tolerate and manage death anxiety by investing in cultural beliefs providing immortality either literally, for example by belief in an afterlife or symbolically, for example by identifying with a greater cause (Strachan et al., 2007). Becker believed to combat death anxiety, human beings exerted a great deal of effort focused on the denial of death (Furer & Walker, 2008).

Influenced by Becker's (1973) writings, Greenberg, Pyszczynski and Solomon (1986) developed terror management theory within which lie two hypotheses: the anxiety-buffer hypothesis and the mortality salience hypothesis. The anxiety-buffer hypothesis argues two factors help buffer against the negative impact of anxiety and protect people from death-related concerns. These two factors are self-esteem and belief in a worldview. Self-esteem is understood as the sense of value derived by living up to the rules and expectations of the culture. The mortality salience hypothesis builds on the anxiety-buffer hypothesis suggesting that if worldviews and self-esteem provide protection against death-related concerns, then reminding

individuals of death resulting in increased awareness of death called mortality salience, should increase their need for these types of structures which are predominantly created by culture. In the context of their theory and with humans' reliance on culture for providing these concepts (worldview and self-esteem) Greenberg, Pyszczynski and Solomon (1986) describe humans as 'cultural animals.' Thus, this theory recognizes high self-esteem as a core protective concept in humans' defense against death anxiety and highlights culture's contribution to helping humans derive self-esteem and hold a worldview. This theory is supported by research demonstrating a negative correlation between high self-esteem and death anxiety (Davis, Martin, Wilee & Voorhees, 1978).

Posttraumatic Growth Theory

Another theory on death anxiety that has emerged is the Posttraumatic Growth Theory. This theory suggests the possibility of positive impact of negative life circumstances such as the crisis of dealing with one's own or a loved one's death (Tedeschi & Calhoun, 1996). This impact may include positive changes in perception of self, relationships with others and philosophy of life. This phenomenon of positive psychological change occurring as a result of surviving a difficult life situation is known as posttraumatic growth (Tadeschi & Calhoun, 1996).

Lykins, Segerstrom, Averill, and Evans (2007) have observed an inward shift that accompanies posttraumatic growth characterized by the pursuit of intrinsic goals aligned with more meaningful needs such as for autonomy, relatedness, competence and growth. They have also noted that a shift away from the pursuit of extrinsic goals indicated an alignment with more superficial needs such as for financial gain or appearing attractive (Lykins et al, 2007).

Comparisons have been drawn between Terror Management Theory and Posttraumatic Growth Theory resulting in the conclusion that the two can be reconciled (Lykins et al, 2007). While Terror Management Theory suggests that facing mortality increases positive shifts towards extrinsic goals such as valuing cultural beliefs, Posttraumatic Growth Theory suggests that facing mortality increases positive shifts towards intrinsic goals such as positive emotional growth (Furer & Walker, 2008).

Assessment of Death Anxiety

There are a variety of tools that assess death anxiety, the majority of which are self-report measures (Lehto & Stein, 2009). The two most frequently used validated instruments are the Death Anxiety Scale (DAS; Templer, 1970; Templer et al., 2006) and the Collett–Lester Fear of Death Scale (CLFDS; Collett & Lester, 1969; Lester, 1990). Other measures include the Death Perspective Scale (DPS; Spilka, Minton, Sizemore, & Stout, 1977), the Multidimensional Fear of Death Scale (MFODS; Hoelter, 1979) and the Death Anxiety Questionnaire (DAQ; Conte, Weiner, & Plutchik, 1982). These measures can vary from being unidimensional like the DAS (Templer, 1970) or multidimensional, for example, the CLFDS (Collett-Lester, 1969) and the MFODS (Hoelter, 1979).

The widely used Death Anxiety Scale (DAS; Templer, 1970; Templer et al., 2006) is a 15-item validated instrument and is based on Templer's (1976) Two-Factor Model of Death Anxiety which notes psychological and life experiences as the two factors that contribute to death anxiety. Templer's scale has been translated into languages including Afrikaans, Arabic, Chinese, Dutch, Farsi, French, German, Hindi, Hmong, Italian, Japanese, Korean, Portuguese, Russian, Spanish, and Swedish (Templer et al, 2006). Beshai & Naboulsi (2004) have acknowledged the crucial role the DAS has played in increasing the knowledge and

understanding of demographic, situational, and personality correlates of death anxiety. It has since been further developed by Thorson and Powell (1992) whose version is called the Revised Death Anxiety Scale (RDAS) or the Thorson-Powell Death Anxiety Scale. The two-factor model also provides the underlying theoretical basis for another instrument, the 20-item Death Anxiety Inventory (DAI; Tomás-Sábado & Gómez-Benito, 2005) which was developed and validated for the Spanish population.

Another commonly employed assessment instrument for death anxiety is the validated Collett-Lester Fear of Death Scale (CLFDS; Collett & Lester, 1969; Lester, 1990; Lester & Abdel-Khalek, 2003) which was originally developed as a 36-item instrument and has since been revised twice and in its current version contains 28 items. The CLFDS comprises of four subscales which measure four types of fears: death of self, dying of self, death of others and dying of others. Bath (2010) highlighted the distinction that the CLFDS recognizes between the state of dying and the process of dying as well as the distinction between one's own death and the death of others. The CLFDS has also contributed to understanding fear of death in association with various variables including age, gender, religiosity, depression, general anxiety, extraversion, neuroticism, and attitudes toward suicide (Lester, 1994).

Like the CLFDS, Hoelter (1979) also provided a multidimensional conception of the fear of death with the validated 48-item Multidimensional Fear of Death Scale (MFODS) which includes eight dimensions of death anxiety namely: fear of the dying process, fear of the dead, fear of being destroyed, fear for significant others, fear of the unknown, fear of conscious death, fear for the body after death and fear of premature death. Spilka's Death Perspective Scale (DPS; 1977) also conceptualizes death anxiety as a multidimensional construct and also measures eight subscales: death as pain and loneliness, death as an after-life reward, indifference towards death,

death as unknown, death as forsaking dependents plus guilt, death as courage, death as failure and death as a natural end.

While there are numerous death anxiety instruments, the quality of psychometric properties for some have been criticized. While systematically reviewing various tools measuring attitudes to death, Groebe et al. (2018) found the reliability of tools such as Collett-Lester Fear of Death Scale (CLFDS), Death Perspective Scale (DPS) and the Multidimensional Fear of Death Scale (MFODS) are still yet to be established (for review see Groebe et al., 2018).

These measures have been used to evaluate death anxiety in a variety of populations including individuals with illness (Karampour, Fereidooni-Moghadam, Zarea, & Cheraghian, 2018; Gonen et al., 2012) as well as those diagnosed with a psychological disorder (Menzies & Dar-Nimrod, 2017; Le Marne & Harris, 2016). Death anxiety measures have also been used in studies with individuals not suffering from medical illness or psychopathology (McClatchey & King, 2015; Thiemann, Quince, Benson, Wood, & Barclay, 2015).

Death Anxiety and Illness

When one is confronted with the finiteness of one's existence it can be argued that the experience of death anxiety comes to the surface. Individuals diagnosed with a serious illness or disease are confronted with this reality (Adelbratt & Strang, 2000). Unsurprisingly, a diagnosis of an advanced or terminal illness is often associated with death anxiety (Engelmann et al., 2016). To examine this link, a number of studies have been conducted specifically on individuals with illnesses such as cancer (Karampour et al., 2018; Gonen et al., 2012), acute coronary syndrome (Steptoe et al, 2011), chronic obstructive pulmonary disease (Gardiner et al, 2009), brain tumours (Adelbratt & Strang, 2000) and HIV/AIDS (Miller, Lee, & Henderson, 2012).

Adelbratt and Strang (2000) believe that people's attitudes towards death have changed over the course of the twentieth century as a result of advancements in health science. They mention a number of reasons for this. For one, the occurrence of death is now more likely to happen in a clinical setting such as a hospital than at home which has makes death an unfamiliar phenomenon. Additionally, in the past where 'quick deaths' were common, people accepted death as a natural part of life. However, nowadays we are more accustomed to 'slow deaths' where people have the time to contemplate on and process their possibly impending ending (Adelbratt & Strang, 2000).

In a similar vein, Şahan et al. (2018) explored if the level of death anxiety differed in individuals with an acute illness from those with a progressively worsening illness. They hypothesized that individuals with an acute illness would experience higher levels of death anxiety in comparison to those with a progressive illness. To test this hypothesis, they used the 25-item Thorson-Powell Death Anxiety Scale (Thorson & Powell, 1992) to measure death anxiety in three participant groups: 60 patients with acute myocardial infarction, 60 patients with cancer and 60 healthy individuals (Şahan et al., 2018). They found that patients with acute myocardial infarction had the highest level of death anxiety among the three groups which Şahan et al. (2018) explain is perhaps due to the sudden and unexpected nature of the illness. Interestingly, they also found that patients with cancer had lower levels of death anxiety than healthy individuals which they argue maybe because cancer patients have a reduced sensitivity to death as a result of being confronted with their inevitable death for a longer period of time in comparison to healthy individuals (Şahan et al., 2018).

In recent times the link between illness and death anxiety can perhaps also be observed among the physically healthy as well. There has been a significant rise in the number of people

using ‘Dr. Google’ to research a perceived symptom or side effect of medication (Dunlevy, 2019, p.3). This phenomenon can be hypothesized as a reaction to the underlying fear of death. Hence it can be further argued that death anxiety is the driving factor that initiates this ‘googling’ but also perhaps maintains it. Googling perceived health or medical symptoms has been described as fueling health anxiety (Peat, 2018). Additionally, Hilger, Otto, Hill, Huber, and Kendel (2018) found that men diagnosed with locally limited prostate cancer using Dr Google as a source of information was associated with increased disease anxiety. Perhaps it the underlying death anxiety that drives this information seeking behaviour leading to further increases in anxiety. This is an area for further research.

Death Anxiety and Psychopathology

While most humans are able to manage their death related fears and anxieties effectively, for some death anxiety may become a more distressing and impairing problem involving avoidance of situations related to illness and death resulting in significant worry and decreased ability to enjoy life (Furer & Walker, 2008). Thus, death anxiety can negatively affect the emotional wellbeing of an individual (Langs, 1997) and is often associated with psychopathology (Jurado, 2014). It has been suggested that psychological disorders emerge from and worsen as a result of unhealthy coping mechanisms (Iverach, Menzies, & Menzies, 2014).

The presence of death anxiety has been studied in the context of somatic symptom disorders (Hiebert, Furer, Mcphail & Walker, 2005); anxiety disorders such as phobias, social anxiety (Strachan et al., 2007), panic disorder (Randall, 2001); depressive disorders (Öngider, & Eyüboğlu, 2013); obsessive–compulsive disorder (OCD) (Strachan et al., 2007); post-traumatic stress disorder (PTSD) (Chatard et al., 2012) and eating disorders (Goldenberg, Arndt, Hart, & Brown, 2005).

Death anxiety and hypochondriasis

The presence of death anxiety has been studied in the context of somatic symptom disorders (Hiebert, Furer, Mcphail & Walker, 2005) particularly with hypochondriasis (Starcevic, 2005; Noyes, Stuart, Longley, Langbehn, & Happel, 2002). Hiebert et al. (2005) considered death anxiety as the 'central feature' in hypochondriasis (p. 215). Further, Starcevic (2005) described patients with hypochondriasis as fearing they have already been afflicted by a fatal illness and being overwhelmed by the uncontrollable, uncertain nature of this perceived impending death.

Death anxiety and panic disorder

Panic disorder has been examined in death anxiety and often along with hypochondriasis with some studies suggesting that the two psychological disorders have a strong association (Starčević, 2007; Torres & Crepaldi, 2002; Furer, Walker, Chartier, & Stein, 1997). Furer et al. (1997) found that participants with panic disorder reported greater death anxiety than those with social anxiety disorder and healthy control participants. They also found that nearly half of panic disorder patients also met criteria for hypochondriasis. Further, when compared to other participants, Furer et al. (1997) found that those who met criteria for both panic disorder and hypochondriasis reported higher death anxiety (Furer and Walker, 2008, Furer et al., 1997).

Death anxiety and phobias

From the view that fear of death is a core feature of psychological disorders particularly anxiety disorders (Kastenbaum, 2000) it may be hypothesized that death anxiety is possibly underlying agoraphobia and other phobias particularly those associated with heights, spiders, snakes and blood and other injury or death related phobias (Iverach et al., 2014; Strachan et al., 2007). It can be argued that phobias arise as a strategy to manage a general sense of death

anxiety by targeting smaller threats to an individual's mortality (Strachan et al., 2007). Strachan et al, (2007) also suggest that phobic symptoms may be precipitated or worsened due to death anxiety.

Death anxiety and separation anxiety

Le Marne and Harris (2016) hypothesized that death anxiety may be associated with separation anxiety disorder as it involves persistent worry about losing a loved one which may include through death (Le Marne & Harris, 2016; American Psychiatric Association, 2013). There have been a few studies that have examined this relationship and its treatment (Bea & Sicart, 1989; Caras, 1995). More recently, Bath (2010) in their research explored separation of loved ones in fear of death among adult participants and highlight two dimensions of death anxiety: death and dying of self and death and dying of others. They found that separation from loved ones including leaving or loss of loved ones was found to be a 'central theme' in an individual's fear of death (Bath, 2010, p. 404). Another study by Taubman–Ben-Ari and Katz–Ben-Ami (2008) studied separation anxiety from the perspective of mothers, called maternal separation anxiety. They found higher reported maternal separation anxiety among mothers who had thoughts regarding their own mortality and reminders of separation from the baby engendered higher death-thought accessibility (Taubman–Ben-Ari & Katz–Ben-Ami, 2008). While these studies provide partial insight into the relationship between death anxiety and separation anxiety disorder by exploring death anxiety related concepts such as death awareness (Taubman–Ben-Ari & Katz–Ben-Ami, 2008) and separation anxiety disorder related experiences such as separation from loved ones (Bath, 2010), further research is required to establish if there is a relationship between the two.

Death anxiety and social anxiety disorder

To date death anxiety as a sole concept has not been studied in social anxiety disorder although it has been studied along with other anxiety disorders such as hypochondriasis and panic disorder (Furer, Walker, Chartier, & Stein, 1997). However, Strachan et al. (2007) have studied mortality salience in social anxiety disorder and have found that mortality salience was associated with increased avoidance of social interaction for individuals high on social interaction anxiety. Hence this finding provides support for the hypothesis that mortality salience is a contributing factor in social anxiety disorder particularly avoidance behaviour. However, further research targeting death anxiety in social anxiety disorder is necessary to better understand the association between them.

Death anxiety and obsessive-compulsive disorder

Mortality salience has been studied in relation to obsessive-compulsive disorder (OCD) (Menzies & Dar-Nimrod, 2017; Strachan et al., 2007). Menzies and Dar-Nimrod (2017) evaluated the link between death anxiety and individuals with OCD washing subtype and found that individuals in the mortality salience priming group exhibited greater compulsions (washing) than those in the control group. However, they were not able to establish that this relationship was moderated by death anxiety although the sample reported high levels of death anxiety. Hence while high levels of death anxiety are evident in this sample, further research is required to establish if this phenomenon is present in other OCD subtypes as well as understanding why increase in mortality salience results in increase in compulsions.

Death anxiety and post-traumatic stress disorder

From the Terror Management Theory perspective, Maxfield, John and Pyszczynski (2014) described how anxiety-buffer functioning can be disrupted by traumatic events. Further, traumatic events can potentially lead to posttraumatic stress disorder (PTSD) (American

Psychological Association, 2013). Thus, it can be inferred that PTSD can emerge in the presence of disruptions to the anxiety-buffer (Iverach et al., 2014). Chatard et al. (2012) found that mortality salience plays a role in PTSD where individuals with high levels of PTSD unsuccessfully suppressed death-related thoughts in the mortality salience priming condition in comparison to the control group. Additionally, death anxiety was also found to be a significant predictor of posttraumatic stress reactions among individuals with spinal cord injuries (Martz, 2004).

Death anxiety and depression

Several studies have aimed to study death anxiety and depression (Azeem & Naz, 2015; Öngider & Eyüboğlu, 2013; Rajabi & Nobandegani, 2017). Öngider and Eyüboğlu (2013) found a significant positive correlation between high levels of depression and high levels of death anxiety and speculated that this strong relationship can be explained due to more death-related thoughts among depressed individuals. To capture the depressive characteristics of death anxiety such as sadness, loss of energy and loss of interest in pleasurable activities, Templer et al. (2002) created the Templer Death Depression Scale-Revised (Templer et al., 2002; Iverach et al., 2014).

Death anxiety and eating disorders

There is a dearth of research examining the relationship between death anxiety and eating disorders such as anorexia nervosa or bulimia nervosa. Goldenberg, Arndt, Hart, & Brown (2005) studied the effects of mortality salience and body mass index on restricted eating among women and found that mortality salience priming was associated with increased restriction of calorie consumption than the control group thus indicating the role of existential concerns in striving for thinness. Le Marne & Harris (2016) also studied death anxiety in the context of eating disorders and found death anxiety to be a predictor of disordered eating.

Death anxiety and personality traits

Research on death anxiety has also shown a positive correlation with personality traits associated with psychopathology such as perfectionism and neuroticism (Le Marne & Harris, 2016; Yıldız & Bulut, 2017) and negative correlation with psychologically healthy personality traits like openness to experience (Yıldız & Bulut, 2017), extraversion (Cully, LaVoie, & Gfeller, 2001) and agreeableness (Cully et al, 2001). Death anxiety is also found to be positively correlated with an external locus of control (Jastrzebski & Slaski, 2011).

Death anxiety as a transdiagnostic construct

Having evidenced the presence of death anxiety in several psychological disorders it is not surprising that Iverach, Menzies, and Menzies (2014) have suggested the concept of death anxiety as a transdiagnostic construct considering death anxiety as the underlying factor in somatic symptom disorder, phobias, social anxiety disorder, panic disorder, agoraphobia separation anxiety disorder, depressive disorders, obsessive-compulsive disorder, post-traumatic stress disorder and eating disorders (Iverach et al., 2014).

Drawing on the findings of research conducted by Strachan et al. (2007), Iverach et al. (2014) explain the development and maintenance of these disorders trans diagnostically from the perspective of Terror Management Theory using the concept of mortality salience, which is the awareness of one's eventual death (Iverach et al., 2014). When death anxiety is inadequately dealt with, psychological disorders arise as a maladaptive way to deal with this (Strachlan et al., 2017). Thus, when anxiety-buffering components such as self-esteem and faith in a worldview are low, death anxiety prevails, and psychological disorders emerge in an attempt to cope with death anxiety.

Following this transdiagnostic view of death anxiety, it is useful to consider the limitations and effectiveness of treating psychological disorders that target only the specific disorder rather than focusing on the underlying death anxiety which may manifest as another form of mental illness following the 'cure' of the disorder being presently targeted (Iverach et al., 2014). This is an area for future study.

Death Anxiety and Non-Clinical Non-Illness Population

The experience of death anxiety however is not confined to populations with psychological or medical illness. There is literature that has evidenced the occurrence of death anxiety in healthy samples such as in students (McClatchey & King, 2015; Thiemann et al., 2015; Tang, Wu, & Yan, 2002), hospice social workers (Quinn-Lee, Olson-McBride, & Unterberger, 2014), physicians (Drnaper et al., 2018), nurses (Nia, Lehto, Ebadi, & Peyrovi, 2016) and lay people (Belmi & Pfeffer, 2016).

Abdel-Khalek and El Nayal (2018) studied death anxiety in two samples of college students from the same university in Lebanon, one in 1998 and the other in 2015 to explore the differences in death anxiety in the context of social, economic, and political changes that have taken place during this time period. Interestingly, they found that there was a significant decrease in the level of death anxiety among women and not men. Abdel-Khalek and El Nayal (2018) suggest that the increase in women's rights progress could account for this and argue that this supports the idea that death anxiety is perhaps a 'fluid entity' (p. 542) influenced by environmental factors.

Death Anxiety and Psychological Interventions

Most people have the ability to manage their death related anxieties in a healthy manner. Furer and Walker (2008) suggest that these adaptive strategies may include engaging in death-related behaviours such as attending funerals, being able to talk openly and regularly about death as well as recognizing the finiteness of life by imbibing a 'seize the day' spirit. However, for the many who are unable to deal adaptively with this, death anxiety may prove distressing and impairing, requiring psychological treatment (Furer & Walker, 2008).

Freud was among the first to propose an antidote to death anxiety, suggesting the use of defenses and phantasies to distort reality in an attempt to protect against the psychological impact of dealing with the terror of death (Piven, 2000). Since then, psychological interventions for death anxiety have included interventions including cognitive behavioural therapy based approaches such as exposure therapy (Bohart & Bergland, 1979; Testa,1981); death education interventions (Glass, 1990; McClatchey & King, 2015); existential therapies such as logotherapy (Hajiazizi, Bahmani, Mahdi, Manzari Tavakoli, & Barshan, 2017), rational-emotive behavioural therapy (Onyechi et al., 2016) and third-wave therapies such as schema therapy (Karbasdehi, Abolghasemi, & Karbasdehi, 2018).

Existential psychotherapy and related therapies

In 1955, with the publication of his book *The Doctor and the Soul*, neurologist and psychiatrist Viktor Frankl introduced logotherapy (Southwick, Lowthert & Graber, 2016). Frankl proposed that humans' 'will to meaning' serves as the primary driving factor for living which if repressed can lead to psychological sickness (Barnes, 2000, p.24). The application of logotherapy involves helping individuals become aware that they have the freedom to choose to create meaning in every situation or circumstance (Barnes, 2000). Research has shown

logotherapy to be effective in reducing death anxiety when delivered in individual therapy format (Zuehlke & Watkins, 1977) as well as in group therapy format (Hajiazizi et al., 2017).

Yalom (1980, 2008) has written extensively on death anxiety and its treatment. In 1980, he published a book on existential psychotherapy in the treatment of death anxiety and specifically targeted themes of freedom, isolation and meaning. Garrow and Walker (2001) illustrated the application of existential therapy in a group of older adults to address death anxiety and concluded that group existential therapy could prove beneficial for individuals with terminal illness, aging or confronting trauma as well as for those caring for such individuals.

Like logotherapy there are several other Meaning-based therapies which are considered a form of existential therapy (Wong, 2010) including Managing Cancer And Living Meaningfully (CALM) which was created specifically to address mental health problems in individuals with cancer and covers four main areas: symptom control and communication with healthcare providers, self-concept and relations with close others, spiritual well-being and values and beliefs that provide meaning and purpose in life (Lo et al., 2014). CALM as an intervention has been researched in the treatment of death anxiety in individuals with advanced cancer and findings indicate that it is effective in reducing death anxiety (Lo et al., 2014).

Death education

Death education is also a frequently used intervention in the treatment of death anxiety (Kim, Cho, & Yoo, 2016; Maglio, 1994; Miles, 1980). Death education involves providing information regarding death using activities that address death including the meaning and attitudes towards death, the dying and bereavement process and the care of those affected by the death of loved ones (Dadfar, Farid, Lester, Vahid, & Birashk, 2016). These death education

activities can be divided into two main categories: didactic (e.g. readings and lectures) and experiential (e.g. role plays) (Miles, 1980; Vargo & Batsel, 1984).

Death education programs have been shown to alleviate death related fears and anxiety in students (Wong, 2017), health care professionals (Dadfar et al., 2016) and individuals with chronic illness such as cancer (Kim et al., 2016; Leung et al., 2015). Other positive outcomes observed post death education interventions include increased levels of hope and spiritual well-being (Kim et al., 2016), increased empathy and mindfulness (Servaty-Seib & Tedrick Parikh, 2014).

Cognitive behavioural therapy and third-wave therapies

Furer and Walker (2008) proposed a cognitive behavioural therapy (CBT) approach to treating death anxiety. They recommended guidelines for assessment, formulation and intervention for treating death anxiety particularly in the context of health anxiety and obsessive-compulsive disorder (OCD). In the intervention phase, they suggested the use of specific cognitive behavioural therapy techniques including exposure and cognitive reappraisal (Furer & Walker, 2008). They also included an additional component that targeted increasing the ability to derive pleasure from life and leading a well-balanced healthy lifestyle (Furer and Walker, 2008). Several studies have investigated the use of CBT based interventions in lowering death anxiety including systematic desensitisation employing an imaginal exposure approach (White, 1983) or an in vivo exposure approach (Bohart & Bergland, 1979) or implosive therapy (Testa, 1981). Menzies et al. (2018) undertook a meta-analysis examining the effectiveness of CBT in comparison to other interventions including death education and logotherapy and their results indicate that CBT is superior to other psychological treatments for death anxiety.

Though few, third-wave therapies have also been examined in the treatment of death anxiety including mindfulness-based interventions (Schultz & Arnau, 2016; Tacón, 2018) and acceptance and commitment therapy (Bayati, Abbasi, Ziapour, Parvane, & Dehghan, 2017; Wilms, 2016). Bayati et al. (2017) investigated the effectiveness of acceptance and commitment therapy in reducing death anxiety among the elderly and found significant improvement in Death Anxiety Scale scores. Karbasdehi et al. (2018) investigated the effectiveness of schema therapy integrated with rehabilitation in 25 patients with congestive heart failure. A ten-session schema therapy intervention was delivered in a group format and included components such as psychoeducation along with teaching behavioural and cognitive schema therapy techniques. Findings of the study indicated that group schema therapy integrated with rehabilitation demonstrated alleviation in existential anxiety (Karbasdehi et al., 2018).

Other interventions

A few studies have strayed from the norm and have explored the role of therapies such as art therapy (Potash, Ho, Chan, Wang, & Cheng, 2014), narrative therapy (Ahn, 2017) and gratitude intervention (Lau & Cheng, 2011) in alleviating death anxiety. Potash et al. (2014) studied the effectiveness of a 6-week art-based intervention in reducing death anxiety among 69 participants compared to a 6-week skills based intervention among 63 participants and found a significant decrease in death anxiety in both groups with the art-based intervention group having less fear and more eagerness to discuss death (Potash et al., 2014). Noting the lack of studies exploring the effect of art therapy on death anxiety particularly in individuals with cancer, Mortazavi (2018) called for clinical trials studying this to improve the quality of present evidence available.

Heidari, Amiri, and Amiri (2016) conducted a single case study investigating the effectiveness of ten 45-minute person-centered therapy sessions in reducing death anxiety and found the intervention successful in alleviating death anxiety in the 73-year-old male participant. In a larger study by Ahn (2017), an 8-week narrative therapy intervention was shown to reduce fear of death in a sample of 56 elderly participants. While there is some evidence suggesting the effectiveness of narrative therapy in lowering death anxiety, more studies need to investigate this among non-elderly populations.

In their study, Lau and Cheng (2012) found that undergraduate student participants in the gratitude condition, involving recalling and writing events they were grateful for reported lower levels of death anxiety than other groups. In another study they conducted, Lau and Cheng (2011) found a brief gratitude induction to contribute to the reduction of death anxiety among Chinese older adults. Though promising, more research is required to cement the strength of evidence proving these interventions are indeed effective in lowering death anxiety.

Gaps in knowledge

While there has been a variety of studies attempting to better understand death anxiety there are areas that will benefit from further research. Investigation into the possibility that death anxiety is a maintaining factor in online information seeking regarding illness symptoms is one such area. Further, association between death anxiety and psychological disorders such as separation anxiety disorder, social anxiety disorder and OCD are yet to be established. More studies are also required to establish the efficacy of third-wave therapies and art-based interventions in reducing death anxiety. Thus, primary research is warranted to fill these gaps in the academic literature.

Further, although systematic reviews and meta-analysis (Maglio, 1994; Menzies et al., 2018; Vos, Craig, & Cooper, 2015) have been conducted to assess the effectiveness of psychotherapeutic interventions in the management of death anxiety, the strength of evidence for death anxiety psychological interventions across illness, clinical and non-clinical populations and across various study designs such as randomized control trials and pretest posttest design is yet to be demonstrated. A synthesis of current evidence in a systematic way can help inform practice and this can be accomplished with an umbrella review approach. An umbrella review is a review of systematic reviews and using this approach can help establish the evidence base for the effectiveness of these psychological interventions in alleviating death anxiety.

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Psychological Interventions for Death Anxiety Among Adults: An Umbrella Review

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Abstract

The aim of the present study was to examine the effectiveness of psychological interventions in alleviating death anxiety. An umbrella review (a review of systematic reviews) was undertaken in accordance with the Joanna Briggs Institute (JBI) methodology and PRISMA guidelines. Eligibility criteria were systematic reviews on psychological interventions to reduce death anxiety among adults. Systematic reviews that contained an exhaustive search strategy, use of appropriate appraisal tools, utilized quantitative methods, and were published in English were considered. Two systematic reviews were deemed eligible to be included in this umbrella review comprising 24 individual studies of psychological interventions such as cognitive behavioural therapy, meaning-oriented therapies and death education interventions. Participants included adults with and without terminal illness. Findings indicate low quality evidence supporting the effectiveness of psychological interventions for death anxiety. Recommendations highlight the need for future research following rigorous methodology and use of more recently developed psychological interventions.

Keywords: death attitudes, death anxiety, psychological interventions, adults, systematic reviews

Psychological Interventions for Death Anxiety Among Adults: An Umbrella Review

Death is a looming reality for all things living (Cahn & Vitrano, 2015) yet it is claimed that humans are the only living beings that are aware of their own inevitable end (Isaacs, 2015). It is suggested that this awareness may result in the experience of anxiety related to death simply known as death anxiety (Becker, 1973, Furer & Walker, 2008). Becker (1973) believed in the universality of this terror of death among all human beings.

Several theories have been proposed in an attempt to understand this phenomenon. The first among them being Templer's (1976) Two-Factor Theory of Death Anxiety which suggested that the level of death anxiety experienced by an individual is determined by an individual's overall psychological health or wellbeing and their personal experiences concerning death. Greenberg, Pyszczynski and Solomon (1986) developed Terror Management Theory which is considered to be the most frequently used theory in research (Menzies, Zuccala, Sharpe & Dar-Nimrod, 2018). Terror Management Theory proposes that an individual's self-esteem and belief in a worldview can buffer death anxiety. Another well-known theory of death anxiety is the Posttraumatic Growth Theory (Tedeschi & Calhoun, 1996) which suggests the possibility of positive impact of negative life circumstances such as the crisis of dealing with one's own or a loved one's death. This impact may be observed as positive changes in perception of self, relationships with others and philosophy of life (Tedeschi & Calhoun, 1996).

While fear of death has been argued to be a universal phenomenon (Becker, 1973), when present in excess it can negatively affect the emotional wellbeing of an individual (Langs, 1997) and is often associated with psychopathology (Jurado, 2014). Death anxiety has been studied in the context of somatic symptom disorders (Hiebert, Furer, Mcphail & Walker, 2005); anxiety disorders such as phobias, social anxiety (Strachan et al., 2007), panic disorder (Randall, 2001);

depressive disorders (Öngider, & Eyüboğlu, 2013); obsessive–compulsive disorder (OCD) (Strachan et al., 2007); post-traumatic stress disorder (PTSD) (Chatard et al., 2012) and eating disorders (Goldenberg, Arndt, Hart, & Brown, 2005). It is considered to be the fundamental fear underlying the existence of many psychological conditions (Arndt, Routledge, Cox, & Goldenberg, 2005; Furer and Walker, 2008; Strachan et al., 2007) and is regarded as a transdiagnostic construct (Iverach, Menzies, & Menzies, 2014).

Death anxiety has also been investigated among individuals with terminal illnesses such as cancer (Gonen et al., 2012; Karampour, Fereidooni-Moghadam, Zarea, & Cheraghian, 2018), acute coronary syndrome (Steptoe et al, 2011), chronic obstructive pulmonary disease (Gardiner et al, 2009) and HIV/AIDS (Miller, Lee, & Henderson, 2012). However, the experience of death anxiety is not confined to populations with psychological or medical illness. Literature documents the occurrence of death anxiety in healthy samples such as in college students (Tang, Wu, & Yan, 2002), hospice social workers (Quinn-Lee, Olson-McBride, & Unterberger, 2014), physicians (Draper et al., 2018), nurses (Nia, Lehto, Ebadi, & Peyrovi, 2016) and lay people (Belmi & Pfeffer, 2016).

Among the first to propose an intervention for death anxiety was Freud whose treatment involved a psychodynamic approach (Piven, 2000). Other psychological interventions include cognitive behaviour therapy based approaches such as systematic desensitization (Bohart & Bergland, 1979; White, 1983), rational-emotive hospice care therapy (Onyechi et al., 2016), life review interventions (Ando, Morita, Akechi et al, 2010), meaning-based interventions such as logotherapy (Hajiazizi, Bahmani, Mahdi, Manzari Tavakoli, & Barshan, 2017) as well as death education interventions (McClatchey & King, 2015). More recently third-wave therapies such as Acceptance and Commitment Therapy (Bayati et al., 2017), Schema Therapy (Karbasdehi et al.,

2018) and Mindfulness-based interventions (Tacón, 2018) have also been employed in the reduction of death anxiety. Additionally, there have been a few studies that have also explored the role of therapies such as art therapy (Potash, Ho, Chan, Wang, & Cheng, 2014), narrative therapy (Ahn, 2017) and gratitude intervention (Lau & Cheng, 2011) in alleviating death anxiety.

Various meta-analyses and systematic reviews have been undertaken to assess the effectiveness of psychotherapeutic interventions in the management of death anxiety (Maglio, 1994; Vos, Craig, & Cooper, 2015; Menzies, Zuccala, Sharpe, & Dar-Nimrod, 2018). However, the strength of evidence for different death anxiety psychological interventions across illness, clinical and non-clinical populations and across various study designs is yet to be demonstrated. For example, Grossman, Brooker, Michael and Kissane's systematic review (2018) included studies with various psychological interventions for death anxiety but was restricted to adults with advanced cancer while Maglio's meta-analysis (1994) was restricted to one psychological intervention namely death education programs and Menzies, Zuccala, Sharpe and Dar-Nimrod (2018) included studies with only randomised control trial design. This gap in knowledge could be addressed with an umbrella review approach which involves a review of systematic reviews. This approach can help establish the evidence base for the effectiveness of these psychological interventions in alleviating death anxiety.

Review question

How effective are psychological interventions for death anxiety among adults?

Method

Protocol and registration

This umbrella review follows the methodology developed by the Joanna Briggs Institute (JBI) (Aromataris et al., 2017). A review protocol following the Preferred Reporting Items for

Systematic Reviews and Meta-Analyses Protocols (PRISMA) (Moher, Liberati, Tetzlaff, & Altman, 2019) was registered with the International Prospective Register of Systematic Reviews (PROSPERO) on 11 March 2019 (registration number CRD42019124482).

Eligibility criteria

Participants. This study considered reviews that included adults with or without physical illness and psychological disorders (17 years and above) diagnosed as experiencing death anxiety by a standardized test or interview conducted by a psychologist. The study of death anxiety is lacking among children and has predominantly been studied in adults (Robinson, 2001) thus the eligibility criteria of the present study was restricted to adult participants. Due to limited systematic reviews obtained, the inclusion criteria were not restricted to physically healthy individuals as initially outlined in the protocol (Menezes, Chur-Hansen & Stern, 2019).

Interventions. Reviews that evaluated psychological interventions for death anxiety were considered. Psychological interventions for death anxiety are defined as a psychological intervention aimed at reducing the fear of death (Menzies, Dar-Nimrod, Sharpe & Zuccala, 2017). This includes therapies such as cognitive behavioural therapy, logotherapy and death education interventions. The comparators could include exposure to no treatment, delayed treatment, another psychological treatment or waiting list control.

No limits were applied on the frequency or duration of interventions. Various formats including therapies delivered individually or in groups were considered and did not require to be delivered face-to-face. Multi-component interventions were also considered.

Outcome. The outcome of interest was change in death anxiety score from pre-treatment to post-treatment, and follow-up, where possible. This study considered validated tools to

measure death anxiety such as but not limited to the Death Anxiety Scale (DAS; Templer, 1970) and Collett-Lester Fear of Death Scale (CLFD; Collett & Lester, 1969).

Types of studies. This umbrella review comprised of systematic reviews that either included or did not include a meta-analysis involving psychological interventions for adults and measures of death anxiety. The inclusion criteria included systematic reviews that had a clear and comprehensive search strategy, used multiple databases and indicated assessment of risk of bias.

While there were no limits on the period of publication, a language limit was applied to ensure only systematic reviews in English were included in the present study.

Search Strategy

A comprehensive search strategy was developed using Boolean search phrases, subject headings and adapted for the following electronic databases: The Campbell Collaboration Online Library, The Cochrane Database of Systematic Reviews, The JBI Database of Systematic Reviews and Implementation Reviews, CINAHL with full text (via EBSCOhost), EMBASE (via ELSEVIER), PsycINFO (via OVID), PubMed, Web of Science, and Scopus. The registers searched included the Centre for Reviews and Dissemination and PROSPERO. Unpublished reviews were searched for in databases that included Google Scholar, MedNar and Proquest Dissertations and Theses Global. The search was undertaken between November 2018 and May 2019. More information in regard to the search strategies is provided in Table S1 in supplementary information.

Assessment of methodological quality

The eligible articles were critically appraised by two reviewers for methodological quality. The JBI Checklist for Systematic Reviews and Research Syntheses (Aromantaris et al.,

2017) was used. Disagreements that were present were resolved through discussion. It was decided that both studies would be included regardless of methodological quality, thus there were no apriori methodological requirements.

Data extraction

Data were extracted from papers included in the review using the standardized data extraction tool from JBI (Aromataris et al., 2017) by two independent reviewers. The data extracted from the systematic reviews included details regarding the methodology, interventions applied, population and outcomes measured relevant to the review question. Disagreements that arose between the reviewers were resolved through discussion.

Strategy for data synthesis

An overall summary of extracted findings is presented narratively. Due to variation in the reporting of the findings of the systematic reviews and variation within the same form of intervention including in duration and frequency, results were not pooled nor presented using the traffic light format recommended by JBI (Aromataris et al., 2017) as outlined in the protocol (Menezes, Chur-Hansen & Stern). Microsoft Word was used to create tables.

Results

Study inclusion

Since a scoping search indicated a limited number of reviews on death anxiety the search strategy was deliberately broad. After the comprehensive search was conducted, all identified citations (n=2446) were collated and uploaded into Endnote X9. A duplicates search revealed 766 redundant citations which were subsequently excluded. An initial screening of titles and abstracts excluded 1668 records. The remaining articles were retrieved in full and assessed in

detail against the inclusion criteria. These steps were undertaken by one reviewer. All full text papers that failed to meet the eligibility criteria were excluded (n=10). The reasons for exclusion are outlined in Table S2 (see supplementary information). A final full text reading of each of the eligible articles (n=2) was undertaken by two reviewers. Any discrepancies regarding inclusion of an article that arose between the reviewers were resolved through discussion. The two remaining systematic reviews were assessed for methodological quality. Figure 1 depicts the PRISMA flowchart outlining the search and inclusion process.

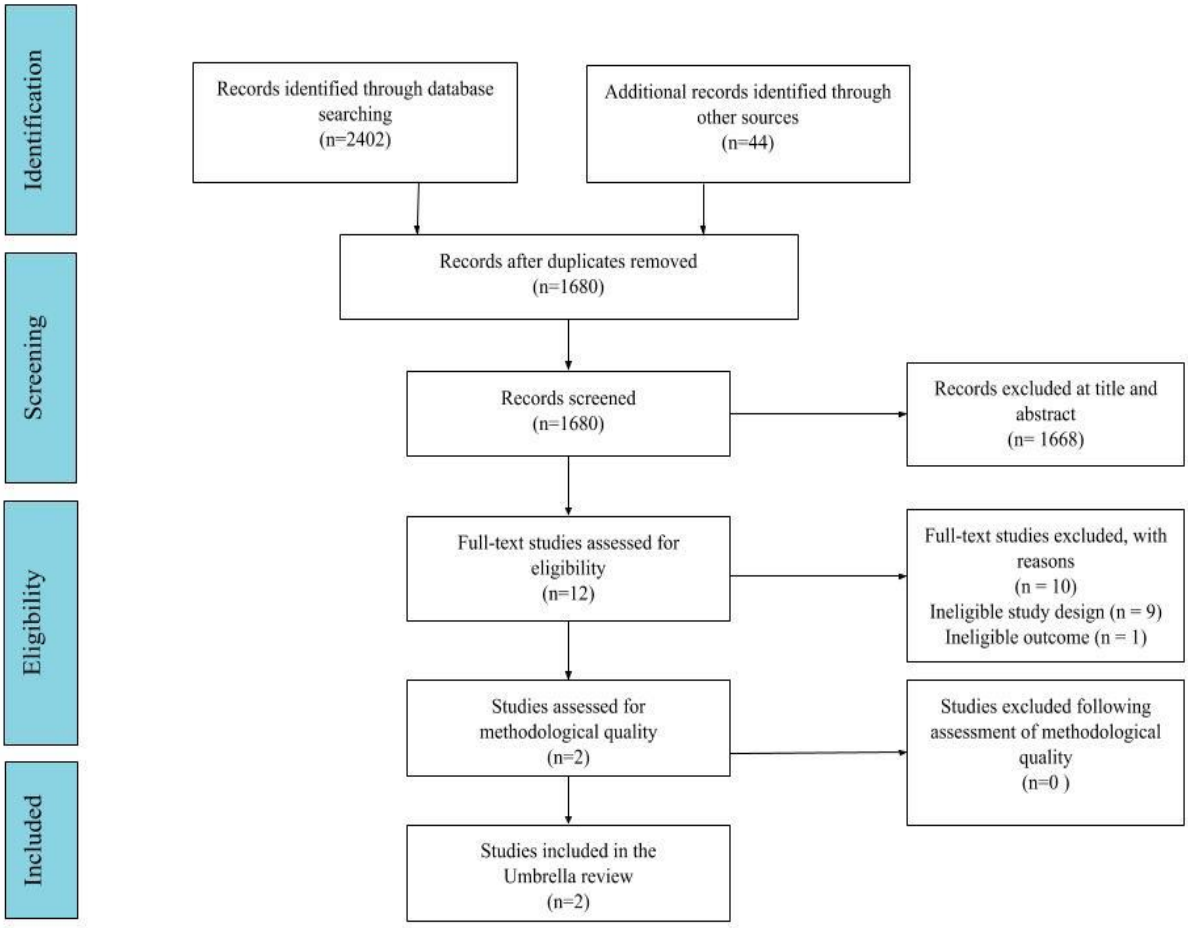

Figure 1 PRISMA Flowchart illustrating selection of papers and inclusion process (Moher et al, 2009).

Methodological quality of included studies

As mentioned above, the two systematic reviews were assessed for methodological quality using the Joanna Briggs Institute Checklist for Systematic Reviews and Research Syntheses (Aromantaris et al., 2017). The total number of 'yes' responses ranged from ten to eleven (out of a possible eleven questions) indicating high methodological quality. Both the reviews had a clear and explicitly stated review question (Q1) that addressed its PICO (Population, Intervention, Comparator, Outcome) elements. The inclusion criteria for both the reviews matched the review question (Q2) with the PICO elements being well defined. The search strategy for both reviews were found to be adequate overall (Q3) where most of the PICO elements were addressed and evidence of use of logical and relevant keywords was present, however, only one review, Grossman, Brooker, Michael, and Kissane (2018), indicated that subject headings and indexing terms were used and a sample search strategy was provided. The sources and resources used in the two systematic reviews to search for primary studies also appeared to be adequate (Q4) although the number of electronic databases were limited to three to four and only one systematic review (Grossman et al., 2018) indicated searching for grey literature by hand-searching. The criteria for appraising primary studies included in the two systematic reviews were found to be appropriate (Q5), the primary studies were appraised independently by two reviewers (Q6), there was evidence of methods to minimise errors in data extraction (Q7) and appropriate methods were used to combine studies (Q8) in both the systematic reviews. While the likelihood of publication bias was reduced by use of a thorough search strategy including hand searching, only one systematic review assessed the likelihood of publication bias using a funnel plot (Q9). Both systematic reviews made recommendations for practice supported by the reported data (Q10) and put forward specific directives for new

research (Q11). Since both reviews were assessed as having a sound methodological quality, both were subsequently included in this umbrella review. For further information see Table S3 in the supplementary information for table outlining the appraisal results.

Characteristics of included studies

Both systematic reviews were published in 2018 and included 24 unique studies (i.e. none were duplicated across reviews). These studies were published between the years of 1977 and 2017. The majority (n=16 studies) were conducted in Australia, Canada and the USA, the rest of the studies were undertaken in Hong Kong, Iran, Japan, Nigeria and Turkey and two studies did not mention country. Both the systematic reviews were quantitative in nature. Menzies, Zuccala, Sharpe, and Dar-Nimrod (2018) also included a narrative synthesis of randomised controlled trials (n=6) with insufficient information specifically regarding details of sample, measures and interventions hence these studies were excluded from this umbrella review. The majority of the 24 studies were randomised controlled trials (n=20) with the control conditions being mainly no treatment, delayed treatment and waitlist. The remaining four studies used a pretest-posttest study design (n=4).

Across the two systematic reviews, the size of the sample ranged from 18 participants (Mohr et al., 2012) to 441 (Chochinov et al., 2011) with a total sample size of 1827 participants. Only one systematic review (Menzies et al., 2018) reported the mean age of participants across 13 studies which was found to be 40.8 as the remaining two studies of the review did not report this (Goris et al., 2017; Miles, 1980). Fourteen studies comprised mainly of participants with chronic illness including cancer and HIV. One of these studies also included partners of patients with advanced cancer among whom death anxiety interventions were also assessed. In seven

studies the sample comprised entirely of nurses. One study focused on residents in a retirement community and two other studies comprised of undergraduate university students.

The psychological interventions included in these systematic reviews can be broadly divided into two main categories: therapeutically-oriented interventions and death education interventions (Menzies et al, 2018). Please refer Table 1 for a detailed description of these interventions. Among the therapeutically-oriented interventions, five of the included studies (20.8%) used CBT based interventions that consisted of systematic desensitisation intervention delivered in group format employing an imaginal exposure approach (White, 1983; Peal, 1981), an in vivo exposure (Bohart & Bergland, 1979) and implosive therapy (Testa, 1981) with some interventions including components of deep muscle relaxation as well as breathing and Rational Emotive Behaviour Therapy (REBT) based individual sessions (Onyechi et al., 2016). Seven studies (29.1%) used interventions targeting meaning in life out of which two studies used manualized individual psychotherapy named Managing Cancer and Living Meaningfully or CALM psychotherapy for individuals with advanced cancer (Lo et al., 2014; Lo et al., 2016), one study used logotherapy (Zuehlke & Watkins, 1977), two studies used a group therapy approach called Meaning-centered group psychotherapy (Breitbart et al., 2010; Breitbart et al., 2015), one used Meaning making intervention (Henry et al., 2010) and another used Meaning of Life intervention (Mok, Lau, Lai, & Ching, 2012). One study (4.1%) focused solely on relaxation training and stress management (Rasmussen, Templer, Kenkel, & Cannon, 1998). Two studies (8.3%) employed a life review intervention focused on reviewing an individual's life and identifying themes (Ando et al., 2010; Vaughan & Kinnier, 1996). Two studies (8.3%) used dignity therapy intervention (Chochinov et al., 2005; Chochinov et al., 2011). One study (4.1%)

implemented a couple's therapy format particularly facilitating discussion around disease and dying (Mohr et al., 2003).

Death education was the intervention of focus in five studies (20.8%) and was included only in Menzies et al. (2018). Among these five, two studies included two separate forms of death education which are didactic and experiential approaches (Dadfar et al., 2016; Vargo & Batsel, 1984) and the Vargo and Batsel (1984) study also incorporated a third 'non-conscious' visualization component. Three studies comprised of death education condition alone (Göriş et al., 2017; Kim et al., 2016; Miles, 1980) employing discussion, lectures and role plays in the delivery of this format. One study (4.1%) could not be assigned to either therapeutic nor death education intervention categories as the treatment condition involved detailing wishes at end-of-life stage which was followed up by an individual session (Henderson, 1990).

Table 1

Summary of Psychological Interventions used to alleviate Death Anxiety

Study	Format of intervention delivery	Number of sessions and duration	Description of intervention
Ando et al. (2010)	Individual	Two weekly sessions of 30-60 minutes each	Short-term life review included an interview and discussion addressing meaning, relationships, memories and support for loved ones. Album of images capturing emerging themes were created.

Table 1 (continued)

Bohart & Bergland (1979)	Group	Two-hour weekly sessions across four weeks	Systematic desensitization also including in vivo systematic desensitization.
Breibart et al. (2010)	Group	Eight weekly sessions of 90 minutes each	Meaning- centered psychotherapy aimed at improving life's meaning, peace and purpose. Discussions involved topics on relationships and impact of cancer on sense of self.
Breibart et al. (2015)	Group	Eight weekly sessions of 90 minutes each	Same as above.
Chochinov et al. (2005)	Individual	Three to four sessions of 30-60 minutes each occurring two to four days apart	Dignity therapy focused on areas such as hope, pride, relationships and death concern. Content of sessions compiled to create document to bequeath to loved ones.
Chochinov et al. (2011)	Individual	One to four session of 30-90 minutes each	Same as above.
Dadfar et al. (2016)	Group	Six-hour weekly sessions across six weeks	Death education intervention involving weekly workshops of either instructional death education using readings and lectures etc.; experiential education with roleplays and films etc. or positive death preparation.

Table 1 (continued)

Goris et al. (2017)	Group	Six, 90-minute sessions	Death education intervention involving training in palliative care including use of case-studies and role-plays.
Henderson (1990)	Individual	Two sessions, length and duration not specified	Intervention involving detailing wishes at end-of-life stage along with one follow-up appointment involving individual discussions.
Henry et al. (2010)	Individual	One to four sessions of 30-90 minutes each	Meaning-making intervention tailored to client needs involving contemplating impact and meaning of cancer diagnosis, past major life events and reorganizing life priorities.
Kim et al. (2016)	Group	Ten weekly sessions of two hours each	Death education intervention involved lectures, discussion and death preparation.
Lo et al. (2014)	Individual	Three to eight sessions of 60 minutes each across six months	Managing Cancer and Living Meaningfully (CALM) intervention targeting symptom management, improving communication, reflecting on impact of cancer on self and relationships, spiritual well-being, maintaining sense of hope and confronting reality of mortality.

Table 1 (continued)

Lo et al. (2016)	Individual	Three to six sessions over three to six months each	Same as above
Miles (1980)	Group	Six weekly sessions of two hours each	Death education intervention involving use of educational course on death and dying with seminars, articles and discussion
Mohr et al (2003)	Couple	Eight weekly sessions of 50-60 minutes each	Couples therapy facilitated discussion around disease and dying. Other goals included managing distress, enhancing communication and improving quality of intimacy in couples. Provision of support for family also covered.
Mok et al. (2012)	Individual	Two sessions across around 2 days with initial session lasting 30-60 minutes and follow up lasting 15-30 minutes	Meaning of life intervention aimed at pursuing meaning through interview style intervention. Emerging themes summarized and presented at follow-up session. Topics included past significant events, relationships and maintaining positive perspective.
Onyechi et al. (2010)	Individual	Ten weekly sessions of 45 minutes each and four weekly follow-up sessions	Manualized rational emotive behavior therapy for hospice care based on cognitive behavior therapy approach

Table 1 (continued)

Peal (1981)	Group	Six to ten sessions of 35 minutes each	Intervention included systematic desensitization and deep muscle relaxation
Rasmussen et al. (1998)	Group	Four sessions of 90 minutes each	Intervention involved relaxation training and stress management classes
Testa (1981)	Group	Five weekly sessions of 50 minutes each	Intervention included systematic desensitization and implosive therapy
Vargo and Batsel (1984)	Group	One session ranging from 90 to 120 minutes each	Intervention involved visualization procedure, guided imaginal exposure and death-related group presentations
Vaughan and Kinnier (1996)	Group	Six sessions of two hours each	Life review workshops including discussion of personal history and lifeline tasks along with support groups involving problem-solving and emotional support
White (1983)	Group	Nine to ten sessions of 35 minutes each	Intervention involving systematic desensitization and deep muscle relaxation
Zuehlke and Watkins (1977)	Individual	Eight sessions of 45 minutes each	Logotherapy is an existential meaning-oriented therapeutic intervention

Death anxiety interventions were observed to have different delivery formats in various studies. The majority of interventions were delivered as a group intervention with thirteen studies

(54.1%) employing this format. Ten studies (41.6%) involved individual intervention and only one (4.1%) had a couple's format for intervention. The interventions were most commonly delivered by trained professionals including psychiatrists, psychologists and counsellors.

Sessions varied in total number from one to two (Ando et al., 2010; Henderson, 1990; Mok et al., 2012) up to eight to ten sessions (Kim et al., 2016; Mohr et al., 2003; Onyechi et al., 2016) with sessions across a period ranging from two to three days (Mok et al., 2012) to six months (Lo et al., 2014). The duration of each session ranged from those lasting 30-60 minutes (Ando et al., 2010; Chochinov et al., 2005; Chochinov et al., 2011) to six-hour sessions (Dadfar et al., 2016).

Death anxiety was measured by various instruments across the different studies commonly prior to and post intervention with the most frequent tool used being the Death Anxiety Scale (20.8%) (DAS; Templer, 1970). Other tools include the Collett-Lester Fear of Death Scale (CLFD, Collett & Lester, 1969), Death and Dying Distress Scale (DDDS; Krause et al., 2015) and Death Anxiety Questionnaire (DAQ; Conte, Weiner & Plutchik, 1982), Quality of Life Concerns in End of Life (QOLC-E; Pang et al., 2005) and Death Attitude Profile Revised (DAP-R; Wong, Reker, & Gesser, 1994).

Both systematic reviews reported results narratively. One review, Menzies et al. (2018), undertook a meta-analysis reporting effect sizes of 15 studies and included a narrative synthesis of studies that were excluded from the meta-analysis. Please refer to Table 4 (supplementary information) for a summary of the characteristics of the systematic reviews included in this study.

Clinical heterogeneity was present in both systematic reviews. The presence of clinical heterogeneity present in the systematic review by Grossman et al. (2018) is attributed to inclusion of different treatment protocols including dignity therapy, short-term life review and meaning-making intervention. In the systematic review by Menzies et al., (2018) the presence of clinical heterogeneity is due to the inclusion of different population groups (illness and non-illness population) as well as the inclusion of different interventions including CBT and death education. The systematic review by Grossman et al., (2018) had higher methodological heterogeneity as it included two different study designs: randomised control trials and pretest-posttest design.

Findings of the review

The findings of the review are presented narratively. Menzies et al. (2018) undertook a meta-analysis and assessed the effectiveness of psychological interventions using Hedge's *g* and found that overall, relative to a control, treatments that included therapeutic or death education interventions significantly reduced death anxiety (p=0.045) with an effect size ranging from small to medium where g= 0.449, 95% CI [.009,.889] in a sample that included individuals with or without terminal illness. Due to methodological and clinical heterogeneity Grossman et al. (2018) were unable to calculate effect size. The findings of this umbrella review are grouped into two categories based on population type: adults with terminal illness and adults without terminal illness.

Adults with terminal illness. A total of fourteen unique studies (across the two reviews) examined various psychological interventions for death anxiety among individuals with terminal illness of which thirteen studies comprised of participants with cancer including breast cancer and ovarian cancer (Ando et al., 2010; Breitbart et al, 2010; Breitbart, 2015; Chochinov et al.,

2005; Chochinov et al., 2011; Henry et al., 2010; Kim et al., 2016; Lo et al., 2014; Lo et al., 2016; Mohr et al., 2003; Mok et al., 2012; Onyechi et al., 2016; Zuechlke & Watkins, 1977). The other (Vaughan & Kinnier, 1996) included participants with HIV.

A range of interventions across the systematic reviews were used in the treatment of death anxiety for adults with terminal illness including: Short-term life review (Ando et al., 2010; Vaughan & Kinnier, 1996), Meaning-centered group psychotherapy (Breitbart et al., 2010; Breitbart et al., 2015), Dignity therapy (Chochinov et al., 2005; Chochinov et al., 2011), Meaning-making intervention (Henry et al., 2010), Managing Cancer and Living Meaningfully (Lo et al., 2014; Lo et al., 2016), Couples Therapy targeting impact of disease and dying (Mohr et al., 2003), Meaning of Life interventions (Mok et al., 2012), life-review intervention (Vaughan & Kinnier, 1996); logotherapy (Zuehlke & Watkins, 1977), death education based intervention (Kim et al., 2016) and CBT-based Rational Emotive Behavior therapy approach (REBT, Onyechi et al., 2016). Meaning-based interventions were found to be the most frequently used type of intervention for this population.

Across the two systematic reviews, findings indicated that some meaning-based therapies, CBT-based therapies and death education interventions showed significant improvements in death anxiety measures including DADDS (Krause et al., 2015), DAQ (Conte, Weiner & Plutchik, 1982) and CLFD (Collett & Lester, 1969).

Among the meaning-based therapies, those that showed statistically significant improvements on death anxiety were meaning of life intervention ($p<0.05$) and logotherapy ($p=0.014$). However, there were mixed results across the two reviews for Managing cancer and living meaningfully psychotherapy (CALM) with one study showing statistically significant

improvement (p<0.009) and another indicating a lack of statistically significant reduction in death anxiety (p=0.739). There were also mixed results for use of life review intervention where one study indicated statistically significant results (p<0.001) and another was unable to demonstrate statistical significance (p=0.384). Couples therapy targeting impact of disease and dying also showed a reduction in death anxiety in the patient (p=0.04) and partner (p=0.049). Menzies et al. (2018) included one study using CBT-based intervention, REBT, for individuals with terminal illness which demonstrated statistically significant results (p<0.001). Death education intervention was also shown to significantly reduce death anxiety (p=0.031). In addition to CALM and life review showing mixed results, dignity therapy did not show statistically significant results.

Adults without illness. The review undertaken by Menzies et al (2018) comprised of nine studies comprised of adults not suffering from a severe, life-threatening or chronic illness. The majority of the non-illness population consisted of nurses with seven studies (Dadfar et al., 2016; Goris et al., 2017; Miles, 1980; Rasmussen et al., 1998; Testa, 1981; Vargo & Batsel, 1984; White, 1983) and the remaining three studies comprising of undergraduate university students (Bohart & Bergland, 1979; Peal, 1981) and residents in a retirement community (Henderson, 1990).

For individuals without a terminal illness, the majority of the interventions employed were either CBT-based or death education-based interventions and measures used included DAP-R (Wong et al., 1994), DOS (Mohammadzadeh et al, 2009) and DDS (Templer et al., 1990). Cognitive behaviour therapy-based interventions such as systematic desensitisation employed imaginal exposure component (Peal, 1981; White, 1983), an in vivo exposure component (Bohart & Bergland, 1979) or implosive therapy (Testa, 1981) and some therapy

formats of systematic densensitisation also included components of deep muscle relaxation as well as breathing. Death education interventions were also used for this population where some studies used a didactic approach involving use of lectures and readings (Dadfar et al., 2016; Miles, 1980), while others included an experiential approach using role plays and films (Dadfar et al., 2016; Goris et al., 2017) and visualization approaches (Vargo & Batsel, 1984). One study involved detailing wishes at end of life stage followed by an individual session of discussion (Henderson, 1990).

Findings from one study showed a death education intervention, specifically, use of seminars, articles and discussions, produced a statistically significant reduction in death anxiety (p=0.002). However, three studies indicated that other forms of death education including use of films, roleplays and group presentations did not show statistically significant improvements. Hence the results pertaining the effectiveness of death education interventions are mixed. Among the CBT-based interventions, in three studies systematic desensitization which included an in vivo systematic desensitization or deep muscle relaxation component showed statistically significant improvements in death anxiety (p<0.05). However, one study using systematic desensitization and implosive therapy showed no significant improvements (p=0.984). Findings also failed to demonstrate statistically significant results for relaxation training and an intervention using end of life review in alleviating death anxiety.

Discussion

Two systematic reviews comprising of 24 unique studies that focused on the use of psychological interventions in the reduction of death anxiety among adults were included in the present study. While some studies indicated there is evidence to suggest that psychological interventions are effective in demonstrating significant improvement in death anxiety, others do

not. For adults with terminal illness, studies reported that meaning-based therapies such as logotherapy and meaning of life intervention, CBT-based REBT, disease and dying focused couples therapy and death education intervention were effective in reducing death anxiety. For other meaning-based therapies such as review of life intervention and managing cancer and living meaningfully psychotherapy results were mixed. Among individuals without terminal illness, the majority of studies indicated CBT-based interventions showed improvements in death anxiety while one did not. For death education interventions, however, the majority reported that this intervention did not show significant reduction in levels of death anxiety. Hence it cannot be confidently concluded that psychological interventions are effective in reducing death anxiety among adults.

The two systematic reviews included in the present umbrella review noted several methodological issues. Grossman et al. (2018) reported that across the individual studies included in the review there was a high risk of bias, lack of blinding of random allocation and high attrition rates. Another limitation was the inclusion of more than one type of study design (randomised control trials and pretest-posttest design) resulting in methodological heterogeneity. Additionally, Grossman et al. (2018) acknowledged that this heterogeneity prevented calculation of an overall effect size. Menzies et al. (2018) also reported similar methodological flaws including lack of strict random allocation, pre-registration of trials and presence of small sample size and high risk of bias. Additionally, they also noted the lack of studies that assessed the effectiveness of psychological interventions on death anxiety among individuals diagnosed with psychological disorders. Grossman et al. (2018) similarly noted the narrow focus of their review that only included individuals with advanced cancer and suggested a need for systematic reviews

that examine the effectiveness of death anxiety interventions on individuals with non-terminal illnesses, cancer survivors and caregivers.

One of the challenges of reviewing the effectiveness of psychological interventions in the reduction of death anxiety was the presence of diversity in the interventions. These interventions varied in frequency and duration of sessions, format of delivery and interventionist. There was especially a great variety in the types of therapies themselves which included therapeutically-oriented and psychoeducational interventions. Further the content of similar forms of therapy also differed, for example, Menzies et al. (2018) included death education intervention studies that ranged from use of palliative training care content to general death and dying lectures, discussions and articles.

Considering the methodological issues and clinical heterogeneity present in the studies included in the two systematic reviews, the quality of the evidence for the effectiveness of psychological interventions on death anxiety is compromised. Further, although the overall appraisal of the two reviews suggested sound methodological quality, there were some short comings. Regarding assessment of publication bias, Grossman et al. (2018) did not use a funnel plot or Egger's test. With regard to the search strategy and sources for studies, Menzies et al. (2018) did not specify the use of subject headings and indexing terms while both Grossman et al. (2018) and Menzies et al. (2018) did not mention search of grey literature, hence it is unclear if potentially eligible studies may have been missed as a result. Additionally, both reviews did not note the use of tools to minimise errors during data extraction.

There are limitations to the present umbrella review as well. Due to its narrow focus only two systematic reviews were included containing a relatively small number of studies. This indicates the need for more primary studies in this area which were also highlighted by the

included systematic reviews. The presence of heterogeneity in the included systematic reviews in terms of population, intervention and study design prevented pooling of individual studies across the systematic reviews. Further, while this umbrella review was deliberately targeted at systematic reviews that included quantitative studies, perhaps future research could potentially examine psychological intervention on death anxiety qualitatively. Future research would also benefit from studying the use of psychological interventions among children as there is currently a dearth of studies that explore death anxiety among this population (Robinson, 2001).

Although both systematic reviews reported that overall results were promising, as mentioned before, they acknowledged the low quality of evidence. This partially aligns with a previous meta-analysis conducted by Maglio (1994) which demonstrated that death education failed to show significant reductions in death anxiety. With the addition of the limitations of the present review, the findings indicate that the evidence to support the effectiveness of psychological interventions on death anxiety needs strengthening. As indicated prior, there is a dearth of quantitative studies in this area, particularly those with strong methodological quality. Menzies et al. (2018) suggested these flaws can be addressed by ensuring sufficient random allocation, use of other psychological interventions as comparators, pre-registration of trials and increasing sample size. As Grossman et al. (2018) indicated, there is also a need for studies examining the effectiveness of psychological interventions on death anxiety among a more diverse range of participants rather than being restricted to individuals with terminal illness and nurses which comprised the majority of the sample population in the present review. Hence, future studies could include a wider range of participants specifically individuals diagnosed with psychological disorders as suggested by Menzies et at. (2018). Additionally, considering the presence of heterogeneity in interventions in the current review, future studies could also ensure

use of treatment protocols for psychological interventions to ensure clinical homogeneity. It was also noted that there was a lack of use of studies using more recent psychological interventions such as Acceptance and Commitment Therapy (ACT) and Schema Therapy in systematic reviews included in the present umbrella review indicating the need for research examining the effectiveness of more recently developed psychological interventions. This lack of use of these interventions in death anxiety has also been pointed out by Iverach et al. (2014) who particularly highlight the potential benefit of ACT in confronting fear of death.

Conclusion

With the inevitability of death, death anxiety is a universal experience which has been suggested to be underlying various forms of psychopathology. Hence there is a need for effective psychological interventions to address this fear of death. While the use of psychological interventions in death anxiety have demonstrated some promising results, however, at present, the quality of evidence to support this is low. Thus, there is a dearth of studies with adequate methodological rigour to strongly support the role of psychological interventions in the alleviation of death anxiety. Future research also needs to address the lack of inclusion of more recent forms of psychological interventions and more diverse participant groups specifically inclusion of participants with psychological disorders.

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Supplementary information

Table S1- Search Strategy

CINAHL-search ran on 31st May 2019

Search ID	Search Terms
S1	TX “death anxiety”
S2	TX “fear of death”
S3	TX “fear of dying”
S4	TX “death related anxiety”
S5	TX “death related worry”
S6	(MH “attitude to death” AND MH “fear”)
S7	(MH “attitude to death” AND MH “anxiety”)
S8	"MH “psychotherapy”
S9	TX “psychotherap*”
S10	MH “cognitive therapy”
S11	TX “cognitive therap*”
S12	TX “psychological treatment*”
S13	TX “cognitive behaviour therap*”
S14	TX “cognitive behavior therap*”
S15	MH “counseling”
S16	TX “counseling”
S17	TX “counselling”
S18	MH “psychoeducation”
S19	TX “psychoeducation”
S20	MH “mindfulness”
S21	TX “mindfulness based stress reduction”

S22	TX “ mindfulness-based cognitive therapy”
S23	TX “mindfulness meditation”
S24	TX “mindfulness-based interventions”
S25	MH “acceptance and commitment therapy”
S26	TX “acceptance and commitment therapy”
S27	MH “death education”
S28	TX “death education”
S29	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7
S30	S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28
S31	S29 AND S30

Table S2 - Full text exclusions with reasons

Hubbard, M. (1982). *The effects of a death education unit on the attitudes toward death and anxieties toward death of college freshmen* (Doctoral dissertation). Retrieved from https://twu-ir.tdl.org/handle/11274/9815
Reason for exclusion - Ineligible study design

Kienow, N. L. (1992). *Death education and death anxiety in student nurse aids* (Doctoral dissertation, The Ohio State University). Retrieved from https://etd.ohiolink.edu/!etd.send_file?accession=osu1487776210794947&disposition=inline
Reason for exclusion - Ineligible study design

Maglio, C. J., & Robinson, S. E. (1994). The effects of death education on death anxiety: A meta-analysis. *OMEGA-Journal of Death and Dying*, *29*(4), 319-335. https://psycnet.apa.org/doi/10.2190/KEA9-2G73-AMJM-MNP6
Reason for exclusion - Ineligible study design

Nia, H. S., Lehto, R. H., Ebadi, A., & Peyrovi, H. (2016). Death anxiety among nurses and health care professionals: A review article. *International Journal of Community based Nursing and Midwifery*, *4*(1), 2. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4709813/
Reason for exclusion - Ineligible study design

Nienaber, K., & Goedereis, E. (2015). Death anxiety and education: a comparison among undergraduate and graduate students. *Death Studies*, *39*(8), 483-490. https://doi.org/10.1080/07481187.2015.1047057
Reason for exclusion - Ineligible study design

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Reason for exclusion - Ineligible study design

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Reason for exclusion - Ineligible study design

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Reason for exclusion - Ineligible outcome

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Reason for exclusion - Ineligible study design

Yarber, W. L., Goeben, P., & Rublee, D. A. (1981). Effects of death education on nursing students' anxiety and locus of control. *Journal of School Health*, *51*(5), 367-372. https://doi.org/10.1111/j.1746-1561.1981.tb05322.x
Reason for exclusion - Ineligible study design

Table S3 - Results of critical appraisal of eligible systematic reviews using the JBI Checklist for Systematic Reviews and Research Syntheses

Review	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
Menzies et al., 2018	Y	Y	U	Y	Y	Y	Y	Y	Y	Y	Y
Grossman et al., 2018	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y

Y = Yes N = No U = Unclear

Q1. Is the review question clearly and explicitly stated?
Q2. Were the inclusion criteria appropriate for the review question?
Q3. Was the search strategy appropriate?
Q4. Were the sources and resources used to search for studies adequate?
Q5. Were the criteria for appraising studies appropriate?
Q6. Was critical appraisal conducted by two or more reviewers independently?
Q7. Were there methods to minimise errors in data extraction?
Q8. Were the methods used to combine studies appropriate?
Q9. Was the likelihood of publication bias assessed?
Q10.Were recommendations for policy and/or practice supported by the reported data?
Q11.Were the specific directives for new research appropriate?

Table S4 Characteristics of included systematic reviews

Author and Year	Objectives of systematic review	Inclusion criteria	Characteristics of included studies
Grossman et al. (2018)	To identify and examine quantitative studies investigating the role of death anxiety interventions for adults with advanced cancer advanced cancer in alleviating fear of death	Participants: adult patients with advanced cancer Intervention: psychological or pharmacological interventions aimed at reducing death anxiety Outcome: death anxiety or closely related existential themes	Included studies: 9 Year range: 2003 - 2015 Study designs: 5 randomised control trial, 4 pretest-posttest Country/setting: Australia, Canada, Hong Kong, Japan and USA Number of participants: 1188
Menzies et al. (2018)	To investigate: 1. If the used of psychological interventions results in significant reduction in death anxiety 2. If there is an observable difference between clinical and non-clinical population in terms of the effects of psychological treatments on death anxiety	Participants: adults Intervention: any psychosocial intervention Outcome: fear of death	Included studies: 15 Year range: 1977 - 2017 Study designs: All 15 randomiseed control trials Country/setting: Canada, Iran, Nigeria, South Korea and Turkey Number of participants (relevant to this

	3. If there is a difference between death education interventions and therapeutically-oriented interventions in terms of the effects on death anxiety 4. If cognitive behavioural therapy interventions produce significantly different effect onw death anxiety hen compared to other forms of treatment interventions 5. If the effects of psychological interventions on death anxiety are moderated by factors such the number and duration of treatment sessions, or the training of the interventionist		review): 639

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