UNDERSTANDING THE NEED FOR EXISTENTIAL MEANING AMONGST THOSE WITH DISORDERED EATING

by

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Abstract

Eating disorders (e.g., Anorexia Nervosa) have the highest mortality rate of any mental illness (Arcelus, Mitchell, Wales, & Nielsen, 2011). Unfortunately, researchers have yet to pinpoint an all-encompassing reason as to why these conditions arise. From the perspective of terror management theory (Greenberg, Pyszczynski, & Solomon, 1986), close relationships, self-esteem, and cultural worldviews (i.e., shared systems of meaning) are important in helping people defend against the awareness of mortality. When these defenses are weakened, individuals may experience an increase in death-related concerns and lower well-being. No studies have applied this framework to eating disorders, despite the evidence that such illnesses arise from similar complications with the three aforementioned coping mechanisms. In the following study, 253 participants with and without an eating disorder were recruited and asked to complete a measure of fear of death. The results revealed that persons with an eating disorder exhibited heightened mortality awareness as compared to control individuals. The implications of heightened mortality awareness in eating disordered populations will be further discussed.

Understanding the Need for Meaning amongst Those with Disordered Eating

In the United States, at least 30 million people suffer from an eating disorder (Hudson, Hiripi, Pope, & Kessler 2007). An eating disorder is characterized by a severe disturbance in people's eating behavior (e.g., binging, purging), along with related thoughts and emotions (e.g., being pre-occupied with food & body weight). The etiology of these disorders, however, is not widely understood. The purpose of the current work is to utilize a terror management theory (TMT; Greenberg, Pyszczynski, & Solomon, 1986) perspective to explore the associative link between disordered eating and mortality awareness. Specifically, given that persons with eating disorders experience problems with anxiety-buffering mechanisms used to provide protection against death concerns (i.e., self-esteem, cultural worldviews, & close relationships), it was hypothesized that anorexic and bulimic individuals would experience a heightened fear of mortality as compared to control participants.

Terror Management Theory (TMT)

Terror management theory examines the extent to which death awareness influences people's thoughts and actions (Solomon, Greenberg, & Pyszczynski, 1991). The perspective is largely based on the work of social scientist Ernest Becker (1962, 1973, 1975), who asserted that humans have the unique capacity for death awareness – that is, the ability to understand that you will one day die, coupled with an instinctual desire to live. These opposing thoughts have the potential to create anxiety, or "terror." Without a mechanism for protection against these thoughts, humans would face constant existential concerns and struggle to adequately function. Therefore, according to Becker (1962) and TMT theorists, people turn to their cultural beliefs, maintain feelings of self-worth, and pursue close personal relationships to reduce death concerns.

The effective use of these anxiety-buffering defense mechanisms leads to a reduction in existential anxieties by providing the individual with either a symbolic (e.g., having children or making a long-last contribution to culture such as art, science, etc.) or literal (e.g., an afterlife, reincarnation) forms of immortality.

Cultural worldview and self-esteem. Cultural worldviews include meaning making systems such as religion and group belonging. These systems provide an individual with a sense of meaning, order, stability, and purpose; thus reducing anxiety (Solomon, Greenberg, & Pyszczynski, 1991). Religious traditions, for example, can help reduce mortality awareness by offering a promise of the afterlife (e.g., heaven). Self-esteem can also be used as an anxiety buffer. Individuals acquire self-esteem by fulfilling the standards of their cultural worldview, thus affirming that they are living in what they perceive to be the correct way. Thus, low self-esteem occurs when individuals feel that they have not fulfilled cultural standards. Research shows that those with high self-esteem have a reduced reaction to mortality salience as compared to those with low self-esteem, suggesting that self-esteem buffers death-related concerns (Harmon-Jones et al. 1997).

Close personal relationships. Recent research has emerged suggesting that close relationships also serve an anxiety-buffering function (see e.g., Mikulincer, Florian, & Hirschberger, 2003 for a review). Close others, such as children, may live on beyond the death of the individual, providing a sense of symbolic immortality. In addition, being loved and valued throughout life by significant others provides a sense of security much like self-esteem and cultural worldview (Mikulincer et al., 2003). Research has shown that reminders of death increase the desire to be in a group rather than alone (Wisman, & Koole, 2002), along with

increasing the need for commitment in romantic relationships (Florian, Mikulincer, & Hirschberger, 2002).

Mortality salience (MS) hypothesis. To the extent that cultural worldviews, self-esteem, and close relationships provide protection against the awareness of mortality, persons should experience an increased need for such mechanisms when thoughts of death are made salient. This is the idea behind the mortality salience hypothesis of TMT. When mortality awareness is high, for example, individuals react more favorably to those with similar cultural worldviews and more negatively toward those with dissimilar beliefs. This practice is called worldview defense. Greenberg and colleagues (1990) found that following reminders of mortality, Christian individuals evaluate fellow Christians more positively and Jewish individuals more negatively than in a control condition where death was not salient (Greenberg et. al., 1990). This sensation can also be observed in the wake of 9/11, when the fear of death associated to the tragedy increased sentiments of American nationality (Yum & Schenck-Hamlin, 2005). Overall, research suggests that reminding people of their own mortality increases the tendency to rely on coping mechanisms.

Death-thought accessibility (DTA) hypothesis. According to the DTA hypothesis of TMT, if individuals deal with mortality awareness by using anxiety-buffer defense mechanisms (i.e., cultural beliefs, self-esteem, and/or close relationships), then a threat these sources of meaning has the potential to increase the accessibility of mortality-related concerns. For instance, research supporting this hypothesis has shown that when individuals' cultural worldview is threatened, death-related words come more easily to mind (Schimel, Hayes, Williams, & Jahrig, 2007). Other studies have shown that giving an individual negative feedback on his/her

intelligence, thus threatening self-esteem, also increases DTA (Hayes, Schimel, Faucher, & Williams, 2008). Of relevance to the current work, much evidence has demonstrated that individuals with compromised TMT defenses (e.g., parents of children with autism spectrum disorder, women with breast cancer, persons with post-traumatic stress disorder; Cox, Reid-Arndt, Arndt, & Moser, 2012; Cox, Eaton, Ekas, & Van Enkevort, 2015; Pyszczynski & Kesebir, 2011) experience a heightened accessibility of mortality-related concerns. The purpose of the present study was to explore if similar effects would emerge for individuals who experience disordered eating.

Eating Disorders

Eating disorders are a category of psychological disorders characterized by persistent disturbances in eating patterns that impede physical or psychological health. The following study looks primarily at Anorexia Nervosa and Bulimia Nervosa, although other eating disorders (i.e. Binge Eating Disorder, Pica, and Ruminative Disorder) are also recognized by the DSM-V (APA; American Psychological Association, 2013). Anorexia Nervosa is an eating disorder characterized by restriction of food intake, intense fear of gaining weight, and a disturbance in body-image (APA). Lifetime prevalence rates of Anorexia Nervosa are about .9% for females in the United States (NIH; National Institute of Mental Health, 2007). Bulimia Nervosa is characterized by the presence of both recurrent episodes of binge eating, wherein an individual eats a large amount of food and feels a sense of a lack of control over eating habits; and compensatory behaviors, wherein an individual purges, over exercises, or abuses laxatives to compensate for food intake (APA). Bulimia Nervosa is also evidenced by negative body-image. Lifetime prevalence rates for females in the United States are approximately 1.5% (NIH).

Eating disorders are associated to a number of negative outcomes, both physical and psychological. They are the most fatal forms of mental illness, with a mortality rate of around 10% (Arcelus et. al., 2011). Disordered eating can have serious health implications as a lack of caloric intake or purging behavior can negatively impact the body. The health consequences of eating disorders include cardiac arrest, hair loss, anemia, cessation of menses, osteoporosis, gastrointestinal bleeding, electrolyte imbalance, and more (Mitchell & Crow, 2006). They are also associated with a number of psychological complications. One study found that 97% of individuals hospitalized for eating disorders are diagnosed with a comorbid psychological disorder (Tagay et. al., 2014). Multiple studies have shown that individuals with eating disorders are at a higher risk for mood disorders, anxiety disorders, personality disorders, and self-harm (Mangweth et. al., 2003; Tagay et. al., 2014; Hudson, Hiripi, Pope, & Kessler, 2007).

The etiology of eating disorders is not widely understood. Biological, psychological, sociocultural, and developmental effects have all been studied without conclusive evidence suggesting an exact cause of these conditions (Rikani et. al., 2013). Previous research emphasized the role of the family members, specifically mothers, in the onset of eating disorder pathology; although the direct nature of that link is now contested (Le Grange, Lock, Loeb, & Nicholls, 2010). Some twin studies suggest a genetic predisposition contributes to eating disorder onset (Thornton, Mazzeo, & Bulik, 2010). Others suggest that personality constructs, such as perfectionism, neuroticism, and impulsivity, lead to the development of disordered eating behaviors (Wonderlich, 1995). Further causes have been investigated as well; including trauma, cultural ideals, dieting behaviors, maladaptive coping mechanisms, and presence of Type 1 diabetes (Striegel-Moore & Cachelin, 2001). No comprehensive cause of eating disorder

pathology has been discovered to date. The following research proposes a potential underlying cause of eating disorder pathology through the lens of TMT.

Anxiety Buffer Disruption Theory (ABDT) of TMT

Due to my interest in understanding the link between mortality awareness and disordered eating, a discussion of the anxiety-buffer disruption hypothesis of TMT is necessary. Anxiety Buffer Disruption Theory (ABDT) suggests that Post-Traumatic Stress Disorder (PTSD) is associated with a breakdown of the tools used to manage anxiety (Pyszczynski & Kesebir, 2010). In other words, those who have experienced severe trauma may have difficulty maintaining close relationships, self-esteem, and cultural worldviews. Because individuals suffering trauma experience breakdowns in anxiety buffers, they are less able to use the mechanisms as a form of defense when thoughts of death are made salient.

To study this hypothesis, researchers recruited survivors of the 2005 Zarand earthquake in south-east Iran and asked them to write about their own death, about the earthquake, or about a neutral control (Abdollahi, Pyszczynski, Maxfield, & Luszczynska, 2011). Participants were then asked about their attitudes toward foreign aid in order to test worldview defense mechanisms. The results found that persons with high PTSD symptomology responded to a mortality salience prime with an increase in positive attitudes about foreign aid. This suggests that those with high PTSD symptom severity do not exhibit normal anxiety buffer functioning. Another study inspected survivors of the Côte d'Ivoire civil war (Chatard et. al., 2012). Participants were asked to fill out measures of PTSD severity and were then presented with either control questions or mortality related questions. Following the questions, participants were asked to fill out word fragments measuring DTA (e.g., D E _ _ can be completed as DEAD or

DEER). Chatard et al. found that individuals with more PTSD symptoms exhibited a greater accessibility of mortality-related thoughts, suggesting compromised TMT defense mechanisms.

While ABDT has been tested among those with PTSD, few studies exist looking at other psychological disorders. Given that some of the proposed causes of eating disorders include low self-esteem, flawed relationships, and cultural worldviews promoting an adherence to the thin ideal (i.e., a belief threat), it makes sense to examine existential and well-being concerns in this population. This breakdown of anxiety buffers is similar to what is seen in PTSD patients and could potentially result in some of the symptoms associated with eating disorders.

Disruptions in self-esteem. Many studies have found that eating disorder patients (i.e., both bulimic & anorexia nervosa) have lower self-esteem than those with normal eating patterns (Silverstone, 1990). This effect has been shown to exist on a spectrum, with individuals with clinically diagnosed eating disorders exhibiting lower self-esteem than those with subclinical disordered eating patterns; and, persons with subclinical disordered eating patterns exhibiting lower self-esteem than normal controls (McFarlane, McCabe, Jarry, Olmsted, & Polivy, 2001). These results exist even when controlling for depression (Jacobi, Paul, de Zwaan, Nutzinger, & Dahme, 2004). Finally, there is evidence to suggest that women often associate body-image with self-esteem; and, eating disordered individuals often experience disturbances in regard to their body image (APA 2013; Furnham, Badmin, & Sneade 2002).

Disruptions in close personal relationships. As previously mentioned, people often turn to their relationships with close others to defend against mortality salience (Mikulincer et al., 2003). Eating disorder onset is related to a number of familial factors. Individuals with eating disorders, for example, are less secure, more anxious, and are more likely to avoid close

relationships (Latzer, Hochdorf, Bachar, & Canetti, 2002). These results may be explained (in part) because of the increased rates of sexual and/or emotional abuse, particularly in childhood (Brown, Russell, Thornton, & Dunn 1997; Fischer, Stojek, & Hartzell 2010; Molendijk, Hoek, Brewerton, & Elzinga, 2017). It may also be an artifact of having a family member with an eating disorder or other psychiatric illness (Jacobi, Hayward, De Zwaan, Kraemer, & Agras 2004; Rivinus et al., 1984). Alternatively, those with disordered eating also exhibit heightened levels of social anxiety (Levinson & Rodebaugh 2011).

Disruptions in cultural worldview. There is also a great deal of evidence supporting the impact of cultural factors in the onset of eating disorders. For example, research suggests acculturation and media exposure can contribute to pathologies. In one study, researchers studied disordered eating behavior in media-naive Fijian adolescent girls before and after exposure to television. They found that disordered eating behaviors (e.g. dieting, self-induced vomiting) increased following prolonged exposure to television (Becker, Burwell, Herzog, Hamburg, & Gilman, 2002). Indeed, internalization of the thin ideal, or the body ideal perpetuated by mainstream Western society, is related to an increased risk for eating disturbances (Thompson & Stice, 2001). From a TMT perspective, ascribing to such standards of meaning can serve a worldview defensive function. An individual strives to fulfill the beauty standards of the culture or group and finds meaning and stability if able to successfully meet those goals.

Overall, given that self-esteem, close relationships, and cultural beliefs are crucial in the management of existential anxieties, it is hypothesized that persons with an eating disorder may be particularly vulnerable to heightened mortality awareness. To examine this, two groups of participants – that is, women who indicated having anorexia or bulimia versus control

participants – were asked to complete two measures of death-related concerns (i.e., a fear of mortality scale & a word-fragment task). To the extent that individuals with disordered eating have weakened defenses against the awareness of death, then such persons should report a greater accessibility of death-related thoughts and heightened fear of death as compared to control participants.

Method

Participants

Given that eating disorders primarily impact women (NIH, 2007), the following study had only female participants. We recruited 235 participants, with 49 persons indicating having either anorexia or bulimia. We recruited participants on Prolific Academic and Amazon's Mechanical Turk (MTurk), both online survey platforms.

Procedure

We paid the Prolific participants $8.45 (U.S.) for their participation. The Prolific research website has been used as a valid and reliable means of obtaining data from clinical populations with eating disorders (e.g., Peer, Brandimarte, Samat, & Acquisti, 2017). Prior to the study, participants were asked to complete a prescreen survey (Yes/No: "Do you have an eating disorder?"). Control, non-eating disordered participants were recruited from Amazon's MTurk (www.mturk.com) and were paid $1.20 for participating in the study. MTurk is a website where researchers can pay individuals to participate in research studies (Buhrmester, Kwang, & Gosling, 2011). All persons, regardless of survey platform, were recruited from the United States and Canada.

The study was conducted online. Individuals were provided with a cover story ("personality characteristics and health") so they were unaware about the true nature of the study (i.e., biased responses). We then provided potential participants with an informed consent form to read and sign prior to participating in the study. Participants were told they could stop at any point in the study and receive full payment. The content and order of the questionnaire is described below. Following the study, all participants were debriefed regarding the true nature of the study. They also received contact information for the researchers if they had any follow-up questions. The survey took approximately 10-15 min to complete.

Measures.

Explicit death concern. Participants complete a one-item fear of death scale to measure explicit death concern (i.e., "I am very much afraid to die;" Arrowood, Cox, & Ekas, 2017). Participants reported fear of death on a 7-point scale (1 = *not at all true*, 7 = *very true*). The one-item scale has been used in previous terror management theory research (Cox et. al. 2012).

Death cognition. Participants completed a word fragment task to assess death-thought accessibility (Hayes, Schimel, Arndt, & Faucher, 2010; Schimel et. al., 2007). This method asks participants to complete fragmented words, some of which are relevant to death concerns, with the first word that comes to mind (Gilbert & Hixon, 1991). The more word fragments a participant completes with death-related words, the more thoughts of death are inferred to be cognitively available. In this study, participants were presented with 24 fragments, six of which could be filled out with death related words (BUR _ _ D, buried or burned; GRA _ _, grave or grape; COFF _ _, coffee or coffin). Versions of this task have been widely utilized in terror management research (Hayes et. al., 2010), including among populations with psychological

disorders (Pyszczynski & Kesebir, 2010). The overall death thought accessibility score was obtained by adding together the number of words that each participants completed with a death-related word. The range of words was 0 to 6, where zero indicated that none of the words were associated with death and six indicated all of the words were associated with death.

Results

We conducted an independent samples *t*-test comparing fear of death between those with eating disorders and those without eating disorders. We found that people with disordered eating reported a higher fear of death. The data were analyzed by running 10,000 bootstrap resamples using the "boot" package (Canty & Ripley, 2017) in R Studio to approximate a normal distribution (see e.g., Sufahani & Ahmad, 2012 for similar procedures). Individuals with eating disorders ($M = 6.29$, $SD = 2.56$) reported a higher fear of death than control participants ($M = 5.67$, $SD = 2.40$), $t(217) = 1.84$, 95% C.I.(.06, 1.17). These results suggest that individuals with eating disorders have a higher fear of death. There were no significant difference between eating and non-disordered populations on the world-fragment completion task, $t(217) = -.45$, $p = .654$.

Discussion

Approximately 30 million Americans struggle with an eating disorder, with such illnesses accounting for the the highest mortality rate of all psychological disorders (Smink, Van Hoeken, & Hoek, 2012). The serious implications of these disorders have prompted researchers to examine risk factors for anorexia and bulimia nervosa, as well as the consequences associated with both disorders. The purpose of the current work was to explore the role of death awareness in the association with eating disorder pathology. It was hypothesized that individuals with eating disorders would show a heightened fear of death. The results of the study found that individuals

with anorexia nervosa and bulimia nervosa experience a greater fear of mortality as compared to a control population.

As the ABDT hypothesis of TMT suggests, one might hypothesize that those with an eating disorder experience heightened death concerns as a result of weakened anxiety buffers typically utilized to cope with death awareness. For example, Cox and colleagues (2015) found that individuals with breast cancer experienced heightened death-thought accessibility, which in turn was associated with decreased well-being (i.e., negative affect, depression, and anxiety). Similarly, the current study found an increased fear of death amongst individuals with eating disorders. Not only are these results consistent with past research, but they suggest that the ABDT hypothesis can be applied to more psychological disorders than just PTSD (Pyszczynski & Kesebir, 2011). Further research might consider the role that anxiety buffer functioning plays in the etiology of other psychological disorders (e.g. mood disorders, substance abuse disorders). Understanding the role that death concerns play in the onset and maintenance of psychological disorders could have major implications for individuals struggling with mental illness and clinicians providing mental health services.

The current research also has implications for individuals struggling with an eating disorder. The etiology of these disorders is not yet understood, and the current research proposes a potential contributing factor in the onset of disordered eating patterns. Anxiety buffer disruption theory could be an overarching explanation as to why so many factors seem to contribute to eating pathology. For example, cultural valuation of thinness and history of abuse have both been shown as potential causes of disordered eating (Thompson & Stice, 2001; Fischer, Stojek, & Hartzell 2010). Through the lens of TMT, Both of these factors could be

understood to contribute to eating disorder onset because both effectively impair anxiety buffer functioning. The present research proposes a framework that takes multiple potential causes of eating disorders into consideration, creating a fuller picture of their etiology. Future research could attempt to better understand how eating behaviors help an individual cope with the increased existential anxiety present in disordered eating individuals. In addition, research into the patient's personal relationship with death and mortality-related concerns could also be a valuable contribution to eating disorder literature.

The current research has implications for mental health clinicians or doctors working with disordered eating populations. Clinicians working with individuals with eating disorders might benefit from addressing the issues in anxiety buffer functioning in a therapeutic setting. For example, previous research has supported the idea that family based treatment methods are effective in the treatment of eating disorders (Couturier, Kimber, & Szatmari, 2013). According to the present research, this method of treatment might be effective, in part, because it helps heal close personal relationships, thus bolstering the function of this anxiety buffer. Future research could attempt to understand whether addressing anxiety buffer functioning improves treatment outcomes and whether death concerns play a mediating role. Further research is needed to fully understand the role anxiety buffer disruption plays in eating disorder maintenance and etiology.

One limitation of this research is that we only inspected the link between disordered eating and death-related thoughts, but we did not identify any variables that potentially moderate this relationship. For example, previous research has shown that body dissatisfaction increases the risk of developing an eating disorder (Stice & Shaw, 2002). Moreover, from a terror management perspective, individuals with high body esteem respond to reminders of death by

identifying more with their body, suggesting that body esteem can be used as an anxiety-buffer in those with positive body esteem (Goldenberg, McCoy, Pyszczynski, Greenberg, & Solomon, 2000). In regards to the current research, it would be interesting for future research to see if disordered eating persons with lower levels of body esteem report greater fear of death than disordered eating persons with higher levels of body esteem.

Another limitation is that the participants in the study were recruited from Prolific and MTurk. Due to the nature of these anonymous survey websites, we were unable to verify whether the participant had an eating disorder or not. Though Prolific offers the use of a prescreen tool, we could not detect whether participants were telling the truth regarding eating disorder diagnosis. We struggled to obtain participants with eating disorders, as many non-disordered participants completed the study. Future research could study fear of death amongst individuals formally diagnosed with eating disorders, perhaps in a treatment setting such as inpatient care.

Another limitation of the current work is that we only recruited female participants. Though the majority of individuals diagnosed with eating disorders are female, males also struggle with disordered eating patterns. Further research could aim to understand how fear of death differs in male and female patients. Previous TMT research has shown that when death is salient, men are more likely to defend cultural worldviews while women are more likely to pursue close personal relationships (Arndt, Greenberg, & Cook, 2003). These differences in how men and women cope with death concerns might be important when understanding how to apply the current research to treatment practices, as a clinician might benefit from changing methods depending on the gender of the patient.

Despite the aforementioned limitations, this research is important because it hopes to identify risk factors associated with disordered eating, primarily focusing on death concerns. The research can be used to better understand the etiology of eating disorders and to improve methods of treatment for individuals struggling with eating disorders. For instance, a therapist working with a patient would be able to address anxiety-buffers (e.g. close personal relationships, self-esteem, and worldview beliefs) as a method of reducing disordered eating patterns. In addition, future research could aim to understand whether bolstering the damaged anxiety buffers (i.e., improving self-esteem) could decrease the use of maladaptive eating patterns.

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