

Work, love, and death thought accessibility: a terror management investigation

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**Abstract**

Terror management theory suggests that following culturally derived scripts for valued behaviour protects people from death concerns, and conversely, not meeting standards for cultural value can weaken this protection, heightening mortality concerns. Using this conceptual framework we examine (1) how considerations of loss of employment, a source of cultural value for many, relates to the accessibility of death-related cognition, and (2) the moderating role of job market health and (3) involvement in close relationships. Study 1 found that writing about being unemployed (vs. a control topic) led to greater mortality-related cognition. Study 2 found that considering unemployment heightened death-cognition, but only when participants were led to perceive the job market as unhealthy. Finally, Study 3 found that considering unemployment led to greater death-cognition, but not for those involved in a close relationship. Findings offer insight into a previously overlooked consequence of unemployment, and factors that may serve a protective function.

**Keywords:** unemployment, terror management, death thought accessibility, close relationship, existential psychology.

In writing on the stages of human development, Erik Erikson, ostensibly drawing on Freud, defined the key goals serving as ingredients to healthy adulthood psychological functioning as “to love and to work” (Erikson, 1950)<sup>1</sup>. Indeed, unemployment is a condition associated with a number of negative factors including heightened risk for substance use (Henkel, 2011), lower well-being (McKee-Ryan et al., 2005; Flint et al., 2013), and what could be considered negative personality shifts such as lower agreeableness, openness to experience, and conscientiousness (Boyce et al., 2010; 2015). Further, fluctuations in labour market health, associated with attributes such as number of jobs, employability, utilisation of worker skills, number of casual and fixed term contracts, and rates of insecure employment are linked with variation in psychological well-being (e.g., Green, 2011; McKee-Ryan & Harvey, 2011; Heyes et al., 2017). This may suggest employment and perceptions of a healthy job market can serve a protective function across a range of domains.

Similarly, being in a relationship, particularly a marriage, is associated with a number of psychological and material benefits that buffer against many negative factors e.g., married people report greater wellbeing (Kim & McKenry, 2002), are at lower risk of cancer and cardiovascular disease (Johnson, Backlund, Sorlie, & Loveless, 2000), and evince reduced vulnerability to psychological disorders (Gove, Style, & Hughes, 1990). Marriage also appears to play a protective role in buffering unemployed individuals against the impact of job loss on life-satisfaction (McKee-Ryan et al., 2005). Thus, an abundance of evidence suggests that losing employment and/or important relationships can have profound (Infurna & Luthar, 2016; 2017) and potentially even synergistic effects on human welfare.

Despite the burgeoning literature informing the numerous implications of unemployment, job market health, and relationship status, and how these relate to one

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<sup>1</sup> Note this is actually not found in Freud’s works, although the sentiment is sometimes implied. For example, when speaking of his wife and being able to work “Couldn’t I for once have you and the work at the same time?” (Freud-Martha Bernays, 1885).

another, one aspect that has received less attention are the relationships between these factors and consequences for existential concerns. Might “love and work” be two interacting factors that can impact people’s concerns about death? Terror management theory (TMT) is a framework that is well positioned to probe this question (Greenberg, Solomon, & Pyszczynski, 1986).

### **Terror management theory**

TMT draws from the writings of Ernest Becker (1973), and proposes humans are motivated to manage the awareness of death via two distinct motivational orientations that are engaged dependent on the level of awareness of mortality (Pyszczynski et al., 1999). According to the theory, when death-related thought enters consciousness people become motivated to remove these cognitions from focal awareness, either by suppressing death-thought or by denying, trivializing, or proactively reducing real or perceived vulnerabilities. In comparison, when death thoughts are active but outside conscious awareness, people become motivated to cultivate a sense of permanence by viewing themselves as having value (self-esteem) within their seemingly permanent cultural system (cultural worldview), which they are driven to protect (worldview defense).

One of the core hypotheses derived from the theory is the anxiety buffer hypothesis (e.g., Greenberg et al., 1993). This hypothesis posits that if the buffering mechanisms outlined by TMT (cultural worldview and self-esteem) are bolstered, then a person should be protected from death concerns and should not need to engage in worldview value striving or defense as their buffers have been strengthened sufficiently to keep death thoughts at bay. Conversely, if these buffers are undermined, accessibility of mortality-thoughts should increase as the protective factors keeping death concerns placated have been weakened. Indeed, several studies indicate that threatening people’s cultural values can rupture protection against existential concerns and heighten death-thought accessibility (DTA),

usually measured via a lexical decision task or a word-stem completion task (see Hayes et al., 2010 for a review). As just a few examples, threatening Canadian participants' cultural values (e.g., the Canadian health care system; vs. the values of another culture) increased DTA (Schimel et al., 2007), asking participants to consider separation from a romantic partner can heighten DTA (Mikulincer et al., 2002), and threatening the religious beliefs of those who are religious can result in greater DTA (Friedman & Rholes, 2007). Despite numerous findings pointing to the relationship between mortality concerns and cultural value, little has been done to connect this theorizing to the realm of employment.

### **The existential function of employment**

Employment is associated with a number of psychological benefits, contributing to self-esteem (Sheeran & McCarthy, 1990; 1992), and psychological well-being (Creed & Macintyre, 2001). Employment can serve as a pathway to the fulfilment of multiple cultural values such as maintaining social relations, achieving a sense of meaning, providing structure, and offering financial reward and status (Jahoda, 1982). Further, monetary reward from employment can serve as a 'gateway' to other cultural values, unlocking the ability for people to purchase products and services facilitating adherence to culturally valued behaviours e.g., purchasing fashionable branded clothes, buying high-end technological goods, being able attend events with friends etc. Notably, from a TMT perspective, many of these factors have been found to protect against the psychological threat of death, or are sought after when death is made salient and people are motivated to attain cultural value/self-esteem. Taken together, the monetary and psychosocial benefits of work point towards the potential for employment to serve as an existential defence.

Similarly, research within organisational studies suggests immersion in institutions can provide access to symbolic immortality through a range of protective pathways including institutional routines and the pursuit of success and power within institutional hierarchies,

activities which may enable individuals to psychologically avoid confronting their mortality (Reedy & Learmonth, 2011; Stein & Cropanzano, 2011). Experimental research examining power processes relevant to organisations has provided some support for these contentions: across three experiments those induced to feel powerful tended to express less death anxiety (Belmi & Pfeffer, 2016). Conversely, breaking a strong identification with one's organisation due to a failure to progress, or to re-integrate following organisational change, or due to the failure of the organisation itself, has been described by some as a form of symbolic death analogous to the death of a loved one, eliciting feelings of grief and loss (Barton Cunningham, 1997).

### **TMT: work and love**

There has been a largely unanswered call for interfacing TMT with a number of workplace phenomena (Stein & Cropanzano, 2011). This omission is particularly noteworthy considering the first TMT publication (Greenberg et al., 1986; pg. 201) suggests "individuals derive self-esteem from viewing their occupation as a highly valued cultural role" and that "people cannot have a sense of self-worth without meeting the requirements of value prescribed by their cultural drama to which they subscribe. Such prescriptions consist of both general and more specific role expectations (for both occupations and social positions)". One of the few papers integrating TMT with employment found that reminders of mortality led to greater desire to work, that activating thoughts of work after a death reminder reduced death-related cognition and worldview defence (out-group derogation), and that inhibiting pathways to cultural value by asking students to consider barriers to employment resulted in heightened death-thought accessibility (Yaakobi, 2015). This suggests mortality concerns can motivate people towards attaining the culturally valued role of employment, in the service of attaining existential security, and that the prospect of unemployment may threaten such security. The idea that organisations can provide existential security is also supported by Jonas and

colleagues (2011). In their studies, it was found that after death reminder, participants gave more favourable evaluations of an essay praising their company, and less favourable evaluations of an essay deriding their company. It was also found that after a death reminder, participants were more likely to endorse aspects of organisational culture. Another study (Routledge & Arndt, 2008), found British participants reminded of death (vs. a control topic), who then considered being part of an organisation that would cease to exist after the person had gone, thus offering no death transcendence (vs. continue to last into the future, thus offering a form of transcending one's own death), indicated greater willingness to make sacrifices to maintain the British way of life. This suggests being a part of an organisation one has contributed to can offer protection against concerns about death if that organisation allows the person to symbolically live on. However, if the organisation one has contributed to would cease to exist (i.e., the pathway to transcendence is blocked), alternative routes to transcendence may be pursued (Routledge & Arndt, 2008). This study suggests that to the extent that unemployment can foster mortality concerns, due to that pathway to death transcendence being obstructed, people may be motivated to search for alternative pathways to circumvent the psychological threat of death.

As such, if people are led to consider unemployment and scan for alternative buffers, then death thoughts may be particularly likely to occur when job market health conditions are poor such that reinstatement of the 'work' buffer is more difficult. Conversely, activation of death concerns may be placated following the threat of unemployment if the job market is perceived as healthy – such that reinstatement of the cultural value of employment is more readily attainable. In sum, employment seems to be one way people may glean a sense of cultural value and psychologically transcend death. Consequently, unemployment may hinder the attainment of such value and threaten the prospect of transcendence with implications for

the activation of existential concerns, with further potential influence from the perceived state of the labour market.

Another area of life in which people often draw a sense of self-esteem and cultural value, is from their close romantic and/or companionate relationships (hereafter close relationships). As with employment, close relationships are associated with a host of positive outcomes such as: a sense of worth (Leary, 1999; Leary & Downs, 1995), meaning (Myers, 2000), social connectedness (Baumeister & Leary, 1995), and financial stability (Hirschl, Altobelli, & Rank, 2003; Lichter, Graefe, & Brown, 2003). Again, from a TMT perspective, these factors are suggested to protect against the psychological threat of mortality, or be striven for when a death is made salient. Indeed, TMT research suggests close relationships can serve an existential function, with reminders of mortality being found to motivate efforts to form and maintain these relationships, increase desire for intimacy and commitment, and heighten the accessibility of attachment constructs (Mikulincer & Florian, 2000; Mikulincer et al., 2002; Florian, Mikulincer, & Hirschberger, 2002). Recent work also suggests that married (vs. single) participants evinced lower death-cognition as a result of ostracism (Yaakobi, 2018). Further, in line with the anxiety buffer hypothesis, having participants imagine a separation from a romantic partner increases the accessibility of death-related thoughts and instigates defensive behaviours (i.e., worldview defence; Florian et al., 2002).

Despite the identification of employment and close relationships as buffers against the psychological threat of death, no work has been done to examine the accessibility of death-related cognition in relation to unemployment, perceptions of job market health, and close relationships in tandem. This work thus integrates elements previously only examined in isolation (i.e. employment and relationship status) in order to understand their interactive effects on DTA in combination with a novel contextual factor: job market health. This integrative approach is important given people spend a considerable portion of their waking



hours participating in employment and close relationships and when faced with the prospect of job loss will have to navigate either an impoverished or healthy job market. Understanding the influence of these contextual factors represents a significant gap in what is currently known about the dynamics of death-related cognition.

### **The present research**

The current research takes a terror management perspective to probe the implications of considerations of unemployment, job market health, and relationship status on death-related cognition. Study 1 examines whether considerations of unemployment can lead to greater DTA. Study 2 examines whether perceptions of job market health moderate the accessibility of death thought after considerations of unemployment. Finally, Study 3 examines whether participation in a close relationship can serve as a buffer against death concerns when people are led to consider being unemployed. The primary hypotheses, derived from integrating TMT with extant work on the self-esteem and cultural value providing properties of employment and relationships, are (1) that considerations of unemployment should lead to greater death-related cognition, (2) specifically when job market conditions are perceived as poor, and (3) that heightened mortality-cognition instilled by consideration of unemployment would be buffered if the person was in a relationship.

We report all measures, manipulations, and exclusions in these studies. All studies were approved by the university Institutional Review Board.

### **Study 1**

Study 1 sought to conceptually replicate the finding in Yaakobi's (2015) Study 4. This study indicated consideration of barriers to employment leads to greater death-thought accessibility. We made several changes to the original design of the study. First, we used a North American sample recruited from an online participant pool. This change was made as the original study featured an Israeli Jewish undergraduate sample, of which, 75% were

employed. By switching to an all job-holding, non-student, adult, and Western sample, we can examine the role of unemployment in relation to existential concerns in an adult job-holding sample, and examine cross-cultural generalisability. Given the target sample for this study is not students, this means employment is likely to feature as one of the core daily activities providing structure, meaning, and social interaction for participants (vs. for example, attending class, writing essays etc). Second, given we aimed to recruit a job-holding non-student sample, we changed the manipulation from thinking about problems finding a job, to thinking about life without a job. Finally, we changed the control condition from watching television, to the negative experience of dental pain, thus keeping the valence of the manipulations in the same direction.

In sum, to inform whether considerations of unemployment would disrupt people's sense of cultural value leading to a weakening of the buffer that keeps death thoughts at bay, Study 1 tested whether writing about unemployment vs. the unpleasant experience of dental pain, would heighten death-related cognition as assessed by a word-stem completion task.

## Method

### *Participants*

One hundred ten participants (age:  $M = 32.48$ ,  $SD = 11.75$ ; 55 male; 55 female) were recruited from Amazon Mechanical Turk<sup>2</sup> – a crowd-sourced internet workforce – in exchange for financial compensation (approximately \$0.50). The study was described as investigating “thoughts and feelings” and requested participants to be in some form of employment in order to be eligible to participate. All participants reported being either in part-time (23%) or full-time employment (77%). Participants were randomly assigned to conditions to either consider unemployment or dental pain. Across studies, sample sizes were

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<sup>2</sup> Filters for participant recruitment across studies 1-3a included: being in North America (United States and Canada), having a HIT approval rate of  $\geq 90\%$ , and being in full time or part time employment. For all studies assignment duration was limited to 30 minutes maximum.

based on power analyses using effect sizes from previous TMT research (see Burke et al., 2010). The average completion time was 10 minutes and 53 seconds.

### *Materials and procedure*

*Unemployment manipulation.* We used a novel task to manipulate thoughts of being unemployed. Participants responded to two open-ended questions, “What do you think your life would be like if you were unemployed?” and “Describe what a typical day would be like if you were unemployed”. The control condition asked similar questions about dental pain “What do you think will happen when you have dental pain?” and “Describe what a typical day would be like if you had dental pain.”

*Death thought accessibility.* Participants’ death-related cognition was assessed by a word fragment completion task used in prior TMT studies (Hayes et al., 2010). Participants completed 25 word fragments, 7 of which could be completed with either a death-related word or a non-death word. For example, the fragment CO\_ \_ \_ \_ could be COFFIN (death-related) or COFFEE (non-death-related). Demographic information was then assessed including age, whether unemployed or in full time or part time employment (as this may have changed since the worker initially signed up to MTurk and the recruitment filtering would not have ruled out those who had since become unemployed), occupation, and estimated annual household income.

## Results

*Death thought accessibility.* A one-way ANOVA (unemployment vs. dental pain) was conducted on DTA. This revealed an effect such that those who were led to consider unemployment had greater DTA ( $M = 2.5$ ;  $SD = 1.53$ ) than those who considered dental pain DTA ( $M = 1.81$ ;  $SD = 1.29$ ),  $F(1,106) = 6.35$ ,  $p = .013$ ,  $\eta_p^2 = .06$ ;  $d = .5$ .

The results of Study 1 suggest that among an exclusively employed group considering unemployment may result in heightened mortality-related cognition. This provides initial evidence of the existential function of employment in mitigating death cognition.

### **Study 2**

Study 2 further probes the role of considering unemployment in relation to mortality concerns, by examining the influence of job market health. While Study 1 indicated considerations of unemployment can result in greater death-related cognition, the real world is more complex and there are likely many factors that contribute to whether unemployment will disrupt one's sense of value, and result in negative psychological consequences. In particular, jobs exist within a market which can facilitate or inhibit reentry to employment and its associated benefits (including providing an existential buffer). Indeed, previous research suggests perceptions of employability can serve as a buffer against some of the negative effects of unemployment (e.g., Green, 2011). Further, in weak labour markets unemployment can be prolonged which is associated with long-term negative welfare and wage 'scarring' effects (Arulampalam, Gregg, & Gregory, 2001; Daly & Delaney, 2013; Paul & Moser, 2009). However, there is no evidence to suggest perceptions of the job market can influence death cognition as it does other psychological factors. Further, Routledge and Arndt (2008), suggested that when pathways to death transcendence are blocked, people may seek alternative ways to reinstate that pathway. To the extent that one's employment can provide death transcendence, and unemployment blocks this, one way to reinstate the buffer is to simply find another job, which may be more or less difficult contingent on job market health. As such, Study 2 sought to examine whether considerations of unemployment and perceptions of job market health impacted activation of death cognition.

## Method

### *Participants*

One hundred and sixty participants completed the Mturk study, described as examining “attitudes and cognition”, and requested participants to be in some form of employment in order to be eligible to participate. Participants were compensated \$0.50. Sixteen participants were removed as they later indicated (as part of the survey) they were not in some form of employment leaving one hundred forty four participants (age:  $M = 35.28$ ,  $SD = 11.26$ ; 64 male; 80 female). Remaining participants reported being either in part-time (31.25%) or full-time employment (68.75%). Participants were randomly assigned to conditions to consider being unemployed or dental pain, and then read a fabricated article ostensibly detailing a thriving or impoverished job market. The average completion time was 13 minutes and 39 seconds.

### *Materials and procedure*

*Unemployment manipulation.* We used a manipulation similar to that of the previous study asking participants to “Describe what a typical day would be like if you were unemployed.” However, because it remains possible that unemployed individuals may have indicated they are employed to receive the study’s financial incentive, or because their unemployment status may have changed and not be reflected in the recruitment filter, we added the sentence: “If you are unemployed, describe your typical day”. To aid the experimental conditions validity we removed 16 people (as noted above) whose responses indicated they were currently unemployed. The control condition was identical to Study 1.

*Job market health manipulation.* To manipulate perceptions of job market health, participants then completed an ostensible graphic design task. Instructions read “On the next screen you will see an article from a webpage. Please take a moment to look over it and in particular pay attention to the graphic design. Please then answer the questions that follow.”

On the next screen participants were presented with an article adapted from a BBC News web-article with the head line “US job market bust/boom as un/employment accelerates”. Below the headline was an image of a person working in a factory with a caption reading “The United States lost/gained 257,000 jobs last month and the number of jobs predicted to be lost/gained in coming months has been revised as sharply lower/higher”. To motivate participants to read the article and bolster believability of the ostensible purpose of the task, participants answered four questions about the design of the page e.g., “I find the layout of this page visually appealing”, “The information on this page is presented clearly”. These were completed on a 10 – point Likert type scale (*1 – strongly disagree, 10 – strongly agree*).

*Death thought accessibility.* DTA and demographics was then assessed as in Study 1, and included the additional question “are you in a relationship” (*1- yes, 0 - no*), as an exploratory measure given prior research indicating an influence of close relationships on DTA (e.g., Florien et al., 2002).

## Results

*Death thought accessibility.* A two-way ANOVA (unemployment vs. dental pain) revealed a main effect for the unemployment manipulation,  $F(1, 140) = 4.88, p = .03, \eta_p^2 = .03$ , such that after writing about being unemployed DTA was greater. The predicted interaction between the unemployment manipulation and job market health manipulation also emerged,  $F(1, 140) = 9.55, p = .002, \eta_p^2 = .06$  (see Figure 1).

Considering unemployment (vs. dental pain) led to greater DTA when the job market was perceived as unhealthy,  $t(70) = 3.75, p < .001, d = .89$ , but not when it was perceived as healthy,  $t(70) = -.62, p = .53, d = -.15$ . Looked at differently, when the job market was perceived as unhealthy (vs. healthy), DTA was greater after considering unemployment,  $t(70) = 3.11, p = .002, d = .74$ , but not when considering dental pain,  $t(70) = -1.26, p = .21, d = -.3$ .

Results of Study 2 suggest considerations of unemployment can lead to increases in death-cognition, particularly when the job market is perceived as unhealthy. In addition, exploratory analyses revealed some evidence relationship status moderated this effect such that those in relationship did not evince heightened DTA when led to consider unemployment and the job market was perceived as unhealthy (see supplementary analyses). This suggests that heightened DTA as a response to considerations of unemployment may be contingent on perceptions of the job market, and whether a person is involved in a relationship.

### **Study 3a and 3b**

Study 2 was informative regarding the role of job market health as a buffer against the threat of unemployment and its eliciting of heightened DTA. Hence it appears that ‘work’ is one possible factor that protects against existential concerns. However, we had little evidence to consider whether ‘love’ would be another variable serving as a buffer against the existential threat of unemployment. Given prior research suggesting participation in relationship can offset some of the negative consequences of unemployment (e.g., McKee-Ryan et al., 2005), we decided to build on these findings and pursue the possibility that heightened death concerns, as a function of thinking about unemployment, would be moderated by relationship status. As such, we dropped the job market health manipulation for Study 3 to focus solely on unemployment and relationship status given previous TMT work examining the influence of close relationships on DTA (e.g., Florian et al., 2002). Further, for Study 3, we made several changes to address issues and strengthen the design of the previous study. First, given previous TMT research suggesting close relationships can serve an existential function by buffering against death-related cognition (Mikulincer & Florian, 2000; Mikulincer et al., 2002; Florian, Mikulincer, & Hirschberger, 2002), we recruited a sample of people who were in (vs. not) a relationship to test if relationships might act as an existential ‘safety net’ or alternative buffer (Routledge & Arndt, 2008), when a person is asked to

consider the cultural value undermining experience of unemployment. Second, we changed the control condition from dental pain to tooth loss to inform whether effects in prior studies may have emerged due to the particular pairing of unemployment vs. dental pain (thus we inform generalizability), and also to make the condition more parallel with the experimental condition by involving the loss of something (i.e., job, tooth). Finally, the manipulations we used to lead people to consider unemployment are promising but novel, and while they have face validity, we sought to include a measure gauging whether this protocol actually leads to the sorts of responses one might expect from considerations of unemployment, and thus inform the validity of the manipulation. Consequently, to achieve some indication of convergent validity that our manipulations were inducing the affective responses one might expect from consideration of unemployment, we included a measure of affect and looked to find some consilience with previous research indicating unemployment is related to greater negative affect (Hoare & Machin, 2006; Paul & Moser, 2009), sadness (Krueger & Mueller, 2012), and aggression (e.g., Fischer et al., 2008), and literature suggesting a more general tendency for interference with attainment of a desired goal (i.e., being employed) fostering frustration and hostility (e.g., Berkowitz, 1989).

In sum, Study 3a and b tested whether writing about unemployment (vs. tooth loss), would heighten death-related cognition, and whether this was moderated by relationship status.

### **Study 3a**

#### **Method**

##### *Participants*

Two hundred and sixty participants completed the Mturk study and were compensated \$0.50. Two studies, requesting one hundred thirty participants each, were posted as a surveys examining “attitudes and personality”, one requesting people only complete the study if they



were in a relationship, and another if they were not in a relationship. Thirty four participants were removed due to not being in some form of employment, and three more who appeared to rush through the survey ( $>2$  SDs below the mean completion time) -- leaving two hundred twenty three participants (age:  $M = 33.30$ ,  $SD = 11.07$ ; 120 male; 103 female). Participant IDs were compared across the relationship and non-relationship data to check for potential duplicates, none were found. Remaining participants reported being either in part-time (35.5%) or full-time employment (64.5%). Participants were randomly assigned to conditions to either consider being unemployed or tooth loss and then completed the affect measure, followed by the DTA measure as in the previous studies. The average completion time was 15 minutes and 38 seconds.

*Materials and procedure.*

*Unemployment manipulation.* To lead participants to consider the consequences of unemployment, participants read the following statement in the unemployment condition “If you were made unemployed tomorrow, how would you feel? How do you think unemployment would alter your life?” In the tooth loss control condition participants were asked “If you lost a tooth tomorrow, how would you feel? How do you think losing a tooth would alter your life?” Below each statement was a space for participants to type their responses. Before completing these measures participants in the relationship condition completed a measure of attachment style (see supplementary materials).

*Affect.* To assess whether the thought of unemployment aroused negative emotions relative to the control topic, participants then completed the 60-item Expanded Positive and Negative Affect Schedule (PANAS-X; Watson & Clark, 1994). Instructions indicated participants should indicate how they think they would feel if they were made unemployed (vs. lost a tooth). Responses to affective adjectives were reported on a 5-point scale (*1 – very slightly or not at all, 5 – extremely*).

*Death thought accessibility.* DTA and demographics were then assessed as in Study 2 and included the additional question (for those in the relationship condition) “How many years have you been in your relationship, if less than a year enter 0”.

### Results

*Affect.* To examine consequences of the unemployment manipulation, both the two higher order scales of the PANAS-X were computed (positive affect  $\alpha = .83$ ; negative affect  $\alpha = .81$ ), and the eleven lower order scales (fear affect  $\alpha = .77$ ; hostility  $\alpha = .65$ ; guilt  $\alpha = .85$ ; sadness  $\alpha = .63$ ; shyness  $\alpha = .67$ ; fatigue  $\alpha = .83$ ; surprise  $\alpha = .87$ ; joviality  $\alpha = .87$ ; self-assurance  $\alpha = .79$ ; attentiveness  $\alpha = .64$ ; serenity  $\alpha = .73$ ). These scales were first submitted to a MANOVA (unemployment vs. tooth loss) to accommodate for inflated experimentwise type 1 error rate given multiple scales were being assessed. There was an effect indicating some difference in affect scores based on considerations of unemployment vs. tooth loss,  $F(14, 204) = 1.89, p = .029$ ; Wilks'  $\Lambda = .86, \eta_p^2 = .12$ . As this initial model was found to be statistically significant, follow up comparisons were pursued. These analyses identified an effect on sadness, such that after writing about unemployment sadness was increased  $F(1, 221) = 11.09, p = .001, \eta_p^2 = .05$ . There was also an effect on hostility, such that after writing about unemployment hostility was greater,  $F(1, 221) = 6.73, p = .01, \eta_p^2 = .03$ . No effects emerged on the other higher or lower order scales, all  $ps > .14$ .

*Death thought accessibility.* A two-way ANOVA (unemployment vs. relationship status) revealed a main effect for the unemployment manipulation,  $F(1, 219) = 7.11, p = .008, \eta_p^2 = .03$ , such that after writing about being unemployed DTA was greater. There was also a main effect of relationship status,  $F(1, 219) = 7.52, p = .007, \eta_p^2 = .03$ , such that those who were not in a relationship evinced higher DTA than those in a relationship. The predicted interaction between the unemployment manipulation and relationship status also emerged,  $F(1, 219) = 5.18, p = .024, \eta_p^2 = .02$  (see Figure 2).

Writing about unemployment (vs. tooth loss) led to greater DTA when the person was not in a relationship,  $t(110) = 3.49, p < .001, d = .67$ , but not when in a relationship,  $t(109) = .28, p = .783, d = .05$ . Looked at differently, when the person was not in a relationship (vs. in a relationship), DTA was greater after considering unemployment,  $t(107) = 3.51, p < .001, d = .68$ , but not when considering tooth loss,  $t(112) = .33, p = .739, d = .06$ .

Results of study 3a suggest being in a close relationship can protect against concern about mortality elicited by the threat of unemployment. However, while informative, there are methodological concerns. Participants were recruited via a posting stating they should be (or not being) in a relationship in order to take part, and, those in the relationship condition completed a measure of attachment prior to completing the unemployment task. It is therefore possible that the recruitment technique and attachment measure served to remind people of their relationship status and thus (for those in a relationship) activated a buffer against the unemployment threat. Indeed, prior research suggests having participants consider their commitment to their romantic partner after a death reminder resulted in less worldview defence, hinting that bringing to mind ones relationship can bolster protection against existential concerns. Accordingly, we re-ran Study 3a albeit with three changes. First, we used a different online recruitment service allowing for selection of participants who were in (vs. not) a relationship and thus avoided a potential reminder of relationship status. Second, we removed the attachment measure. Finally, the affect outcome measure was removed from Study 3a resulting in a much shorter study.

### **Study 3b**

#### Method

##### *Participants*

Two hundred and sixty participants completed the study via Prolific (a European based online recruitment site) and were compensated 40p. The Prolific demographic screening

tools allowed employed participants with known relationship status from the UK to be recruited. 20 participants were removed due indicating, as part of the demographic measures, they were not in some form of employment (thus their employment status had changed since they completed the screening measures), and 10 more were removed who rushed through the survey ( $>2$  SDs below the mean completion time) -- leaving two hundred thirty participants (age:  $M = 29.10$ ,  $SD = 9.15$ ; 107 male; 123 female). Remaining participants reported being either in part-time (39.9%) or full-time employment (61.1%). Participants were randomly assigned to conditions to either consider being unemployed or tooth loss, then completed the DTA measure as in the previous studies. The average completion time was 6 minutes and 58 seconds.

#### *Materials and procedure.*

*Unemployment manipulation and death thought accessibility.* The unemployment manipulation and measurement of DTA were identical to those in Study 3a.

### Results

*Death thought accessibility.* A two-way ANOVA (unemployment vs. relationship status) revealed no main effects ( $ps > .127$ ). However, the predicted interaction between the unemployment manipulation and relationship status did emerge,  $F(1, 226) = 4.99$ ,  $p = .027$ ,  $\eta_p^2 = .02$  (see Figure 3).

Writing about unemployment (vs. tooth loss) led to greater DTA when the person was not in a relationship,  $t(114) = 2.15$ ,  $p = .033$ ,  $d = .4$ , but not when in a relationship,  $t(112) = -1.01$ ,  $p = .312$ ,  $d = -.19$ . Looked at differently, when the person was not in a relationship (vs. in a relationship), DTA was greater after considering unemployment,  $t(110) = 2.67$ ,  $p = .008$ ,  $d = .51$ , but not when considering tooth loss,  $t(116) = -.46$ ,  $p = .642$ ,  $d = -.08$ .

### Discussion

The present research provides an integrative investigation into the existential function of employment, job market health, and close relationships in relation to mortality concerns. Across three studies we uncovered evidence that considering unemployment led to heightened death concerns. We also found that this association was largely absent when the labour market was perceived as healthy (Study 2), or if the person is involved in a close relationship (Study 3). These findings provided evidence supporting our theoretical argument that losing employment may disrupt people's sense of cultural value, particularly if potential economic and interpersonal buffers are lacking.

The present research provides two primary contributions. First, a conceptual replication and extension of previous TMT research in the realm of employment and mortality concerns. Yaakobi's (2015) research suggests a link between employment, the cultural value that it can provide, and mortality concerns. These prior findings indicated, for example, that leading students to consider barriers to employment heightened death concerns. Our results converge with this research by demonstrating that evoking the prospect of job loss can heighten the accessibility of death-related thoughts. The present studies also offer novel contributions concerning our understanding of the interface between the cultural value of employment and existential concerns, by delineating how additional factors pertinent to employment may act as existential buffers when a person is confronted with the threat of unemployment.

Specifically, by manipulating perceptions of the job market and examining the moderating role of close relationships, a more nuanced view emerges of when concerns about unemployment are likely to elicit death-related cognition, and the factors that may provide protection against such existential concerns. As such, while it seems that employment is one way that people can achieve a 'pathway to immortality' (Lifton, 1973; 1983), our findings hint at the notion that disrupting one pathway to immortality does not pose an existential

threat if that pathway is easily restored (via a healthy job market) or if alternate pathways to cultural value and self-esteem are readily available (via close relationships).

A second contribution of the current programme of study is the identification of a previously overlooked psychological consequence of the threat of unemployment. While considerable research points to the implications of unemployment for physical health (e.g., Henkel, 2011), well-being (e.g., Daly & Delaney, 2013; Flint et al., 2013; Paul & Moser, 2009), and personality (Boyce et al., 2010; 2015), this research highlights an additional response to the psychological threat of unemployment: heightened death thought accessibility. TMT suggests that fluctuations in DTA are a normative aspect of a person's psychological functioning in response to experiences that bolster or threaten cultural value or undermine self-esteem, and conversely, that death concerns can motivate striving for feelings of self-worth and cultural value. In this sense, the heightened DTA in response to the threat of unemployment demonstrated in the current studies is unlikely to indicate any psychological health issues on the part of the participants or that psychological issues pertaining to unemployment are directly connected to mortality-related cognition as conceptualized by TMT.

Indeed, we anticipate that the heightened DTA invoked in the current studies may motivate people to pursue self-esteem or cultural value, for instance, by increasing the desire to work as suggested previously (Yaakobi, 2015). Similarly, we view these results as consistent with Routledge and Arndt's (2008) findings and inferences. Recall that participants in that study were led to consider mortality and then considered an organisation they contributed to, but did not offer death transcendence. This lack of transcendence was argued to lead to people seeking alternative pathways to cultural value elsewhere i.e., via sacrificing to protect the British way of life. While the present research did not examine alternative buffers as drastic as sacrificing to protect British values, but rather simply finding another job

and involvement in a close relationship, we believe the present research is consistent with this theorizing. Specifically, to the extent that when people considered unemployment, death concerns were not heightened when the job market was perceived as healthy or they were involved in a close relationship, meaning alternative 'love' buffers were available or reinstatement of the 'work' pathway was more viable. Taken together with the present research, this hints at a complex relationship between the potential activation of death cognition following a threat to the existential buffer of employment, the possibility of reinstating that buffer, and availability of alternative cultural buffers (such as close relationships) a person might fall back on.

Possible explanations for the pattern of findings reported in the present research might be gleaned from examining what aspects of the job market and close relationships provide the buffer against mortality concerns elicited by considerations of unemployment. Job market health is perhaps more transparent -- If the availability of jobs is limited then this is a barrier to reinstating the culturally valued role of being employed. However, if many jobs are perceived to be available then one may feel that re-entry to employment is more achievable, and thus considerations of unemployment are less likely to elicit existential concerns as the cultural value and self-esteem employment provides are more readily pursued and reinstated. Indeed, this theorising is consistent with Yaakobi's (2015) finding that considering barriers to employment (such as an unhealthy job market here) was key in evoking death thoughts. The buffering properties of close relationships however may be more complex.

Close relationships provide a host of psychological and material benefits and previous TMT research indicates close relationships serve a protective function against mortality reminders (e.g., Florian et al., 2002). While this protection may be due to the self-esteem and worldview validation short and long term relationships can provide (e.g., Kosloff, Greenberg, Sullivan, & Weise, 2010; Sigall & Landy, 1973; Stewart, Stinnett, & Rosenfeld, 2000), it is

also possible that other more instrumental factors may also be operative. For example, money has been suggested to act as a buffer against the psychological threat of death. Mortality reminders have been found to lead people to value money to a greater extent, and money primes led to lower levels of self-reported fear of death (Zaleskiewicz et al., 2013). Further, primes that lead people to consider saving money were also associated with reduced fear of death. Connecting this back to relationships, if a person is involved in a close relationship, then the partner may have sufficient income or saved funds to offset the financial (and existential) threat of becoming unemployed. Consequently, mortality concerns would not be elicited as the partner serves as a financial safety net. Another possibility is that being in a close relationship may also mean that the person has (or could have) a child. Lifton (1973; 1983) noted that another 'pathway to immortality' was via the biological mode. This mode relates to a person protecting themselves against death concerns via their children, who provide a sense of continuity and legacy, thus in some capacity allowing them to transcend death. Indeed, prior TMT research suggests death reminders can spur people (especially men) to desire offspring (Wisman & Goldenberg, 2005). A final consideration of close relationships is that attachment style can dictate whether such relationships will be effective in warding off existential concerns, with secure attachments providing the greatest protection vs. anxious-ambivalent and avoidant styles (Mikulincer & Florian, 2000). Unfortunately, while we did measure attachment style and found no moderating effect (see supplementary analyses), we did not assess whether participants had children or the income of partners in any of the present studies. Future research might look at disentangling what variables are serving as the influential properties of close relationships that provide a protective function against the psychological threat of unemployment and associated existential concerns.

Concerning the DTA results across studies, there was some variation in the mean levels of DTA across conditions. One reason for this might relate to when DTA was assessed



relative to the unemployment threat. A recent meta-analysis suggests worldview threat (here manifested as unemployment) can result in variations in the magnitude of DTA contingent on the amount of time from the threat to measurement of DTA, and also the number/length of tasks between the threat and DTA measurement (see Steinman & Updegraff, 2015). Longer delays or longer tasks between the threat manipulation and measurement of DTA were found to result in smaller effects. The data presented in Studies 1 and 2 align with this, as effects on DTA were smaller in Study 2 which featured more and longer tasks between the unemployment manipulation and measurement of DTA. However, Study 3 does not fit within this pattern of more tasks between IV and DTA measurement leading to larger effect sizes (given DTA was measured immediately after the unemployment threat larger effect sizes might have been expected). One possible explanation for these data might pertain to utilising a non-US sample where terror management effects have been found to be less pronounced (e.g., Yen and Cheng, 2013). Another possibility for the variation in DTA across studies (particularly in the unemployment condition) might relate to the way the manipulation was slightly changed through Study 1 to Study 3, and the control condition changed from Studies 1 and 2, to Study 3. While these changes were made in the interest of bolstering the validity of the manipulation and making the control condition more parallel with the experimental condition, it may have also introduced variation in the level of DTA. Ultimately, though we can point to possibilities, further research is needed to determine the factors that impinge on levels of DTA.

One limitation of the present research is that it does not inform the potential influence of occupations that do not provide a sense of self-esteem or cultural value. Following TMT, these occupations would lack the attributes to buffer against death concerns, and may even evoke mortality concerns if the job fosters a sense of low self-worth and/or thwarts feelings of cultural value. Though the studies reported here consistently showed that unemployment

can foster death concerns, we do not take the position that unemployment will always lead to heightened existential concerns. It is possible, in some cases and for some people, going to work actually exacerbates death concerns, or, losing one's job may actually contribute to placating death concerns e.g., if the job features frequent reminders of death or is degrading and thus hinders attainment of self-esteem and cultural value. Indeed, research suggests nurses and firefighters who often encounter death as part of their work evince increased burnout, reduced engagement, and higher absenteeism, particularly for those higher in trait death anxiety (Sliter et al., 2014). This may suggest detachment from, or loss of work for these kinds of occupations actually serves to reduce death concerns. As such, the current findings represent an initial step in addressing the call for integrating TMT with organisational studies and in opening up new questions about the dynamics of unemployment and existential concerns, and the combined effects of factors previously examined in isolation (Stein & Cropanzano, 2011). There is clearly much more to be done, and future research may further explore the potential nuances of when and for whom unemployment does (vs. does not) represent an existential threat.

### **Conclusion**

Utilising the theoretical framework of terror management theory, three studies informed the existential function of employment and close relationships. These studies highlight a previously overlooked consequence of the threat of unemployment – heightened mortality concerns, and the factors of job market health and relationships status that may aid in thwarting the elicitation of such cognition, keeping death thoughts at bay. Indeed, there may be some weight to Freud's ostensible claim that "to love and to work" are two factors that can protect psychological equanimity, even in the face of mortality concerns.

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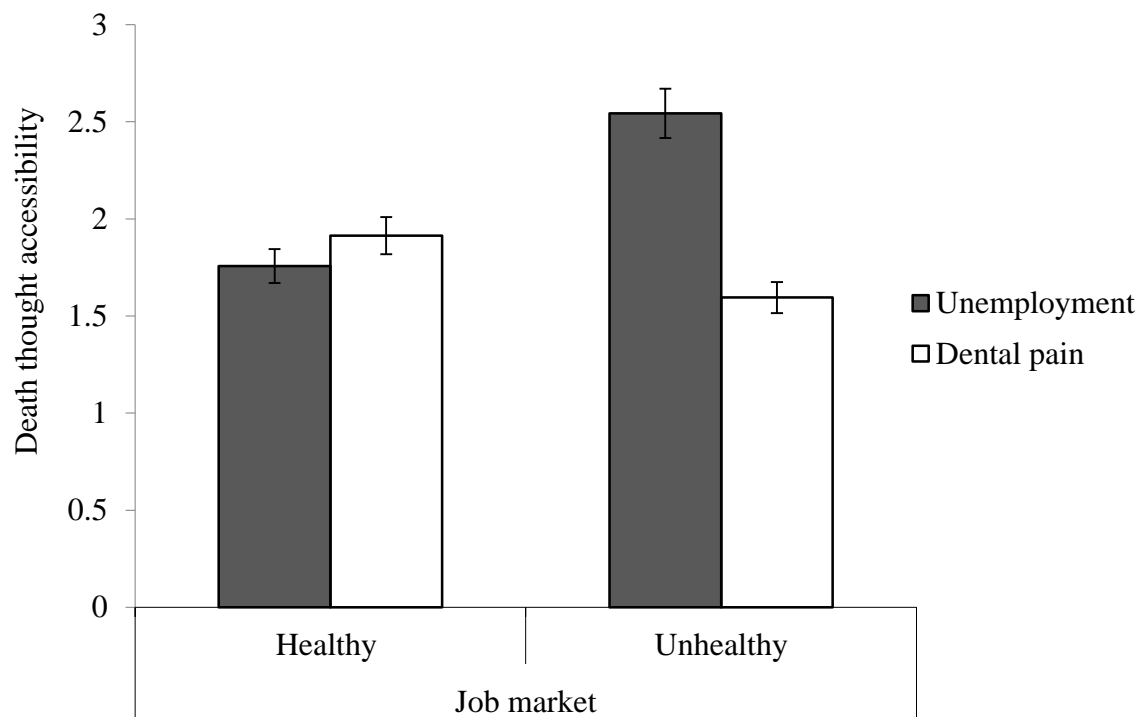


Figure 1. Death thought accessibility as a function of unemployment manipulation and job market health (Study 2).

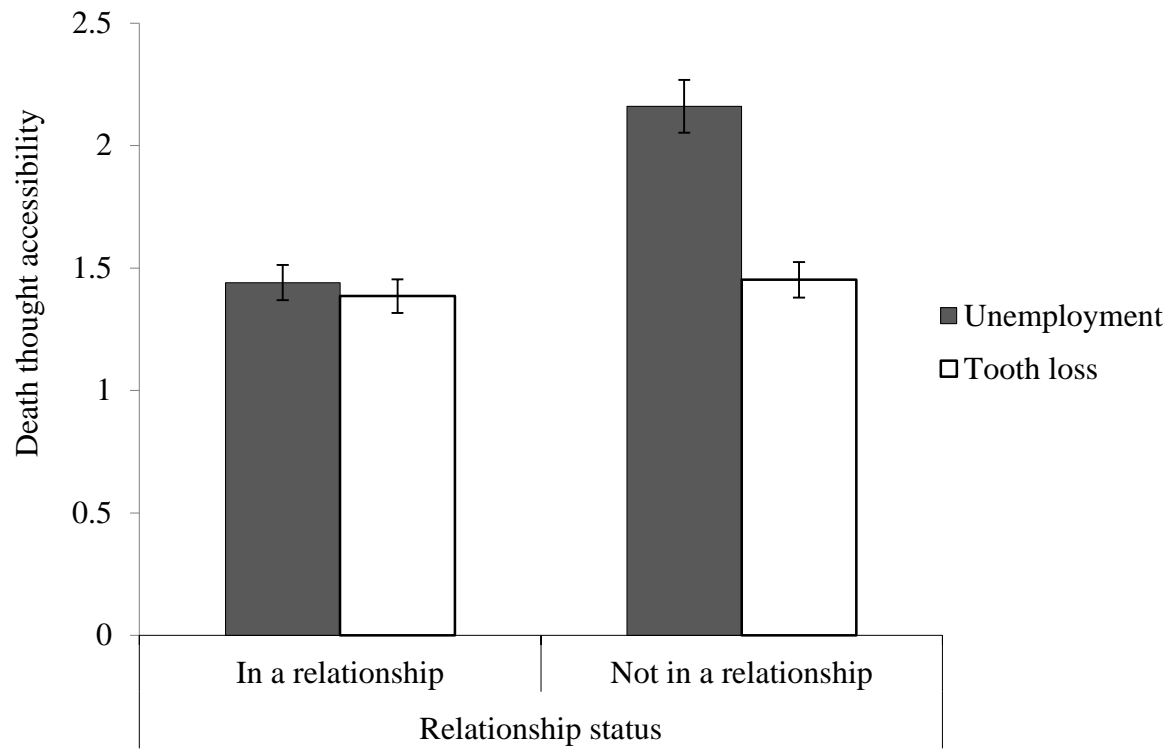


Figure 2. Death thought accessibility as a function of unemployment manipulation and relationship status (Study 3a).

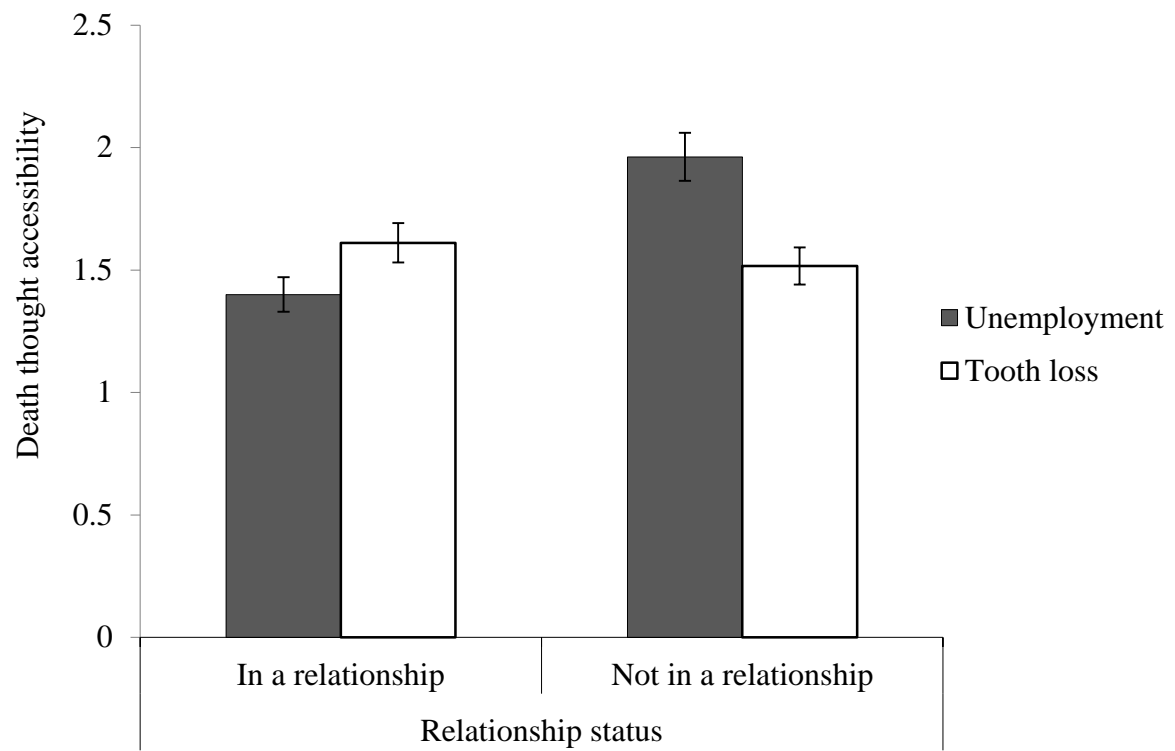


Figure 3. Death thought accessibility as a function of unemployment manipulation and relationship status (Study 3b).