

ANXIETY BUFFER DISRUPTION: RELATIONSHIP THREAT, DEATH ANXIETY, AND COPING APPRAISALS AMONG LOW AND HIGH POSTTRAUMATIC STRESS SYMPTOM SAMPLES

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Objective: Prior work suggests that people function effectively in the world, in part, by relying on sociocultural anxiety-buffer systems to protect against death anxiety. However, traumatic experiences may overwhelm and disrupt those systems, and this work tests whether posttraumatic stress symptoms reflect a vulnerability to death anxiety and risk of coping failure. **Method:** Following posttraumatic stress screening ($n = 4129$), individuals with low ($n = 187$) and high ($n = 186$) posttraumatic stress symptoms engaged in either an anxiety-buffer stressor task (contemplating relationship problems) or control task. Participants subsequently reported death anxiety and made coping appraisals. **Results:** Results supported four key hypotheses. Among individuals with low posttraumatic stress: (1) death anxiety was low under control conditions but moderately increased after contemplating relationship problems; and (2) perceived coping ability remained high in both conditions. However, among those with high posttraumatic stress: (3) death anxiety was exceptionally high in both the relationship problems prime and the control conditions—indicating anxiety buffer disruption; and (4) perceived coping ability was low in the control condition, and even lower after contemplating relationship problems. **Conclusions:** These findings support the hypotheses and make novel contributions, in that prior research on the existential implications of PTSD have not considered that anxiety buffer disruption may be associated with failure to cope with new challenges after traumatic experiences. Future re-

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search should determine whether therapies can improve the core dimensions of functional worldviews, a sense of meaning and self-esteem, and whether such improvements result in improvements to perceived coping abilities.

Keywords: PTSD; anxiety buffer disruption; death anxiety; coping; relationships

Clinical Impact Statement. This study suggests that people with low posttraumatic stress are normally able to function effectively in the world, in part, by relying on sociocultural anxiety-buffer systems to protect against death anxiety. In contrast, this study also finds that traumatic experiences may overwhelm and disrupt those systems, leaving people with high posttraumatic stress vulnerable to elevated death anxiety even when not experiencing a stressor and putting them at risk of coping failure when stressors occur. Implications are that traumatic anxiety buffer disruption might contribute to PTSD symptoms by increasing vulnerability to death anxiety and failure to cope with social stressors.

In his *New York Times* Op-Ed exploring PTSD among veteran soldiers and war correspondents, David Brooks (2015) noted that the traumatic events that unfold during combat can shake one's moral world to the core—women and children might be used as human shields; improvised explosive devices maim and kill indiscriminately; and patriotism, faith, and bravery are unpredictably rewarded with pain, disaster, and death. Of course, traumatic events can also permeate civilian life in the form of war/terrorism, car accidents, natural disasters, sexual assaults, life-threatening medical experiences, and so on. In some cases, these traumatic experiences can lead to enduring negative changes in core beliefs (e.g., the world is a dangerous place), increased anxiety/hyper-arousal, cognitive and emotional re-experiencing (e.g., flashbacks), and effortful avoidance of reminders of the traumatic event—the major symptom clusters of posttraumatic stress disorder (PTSD; American Psychiatric Association, 2013).

Research rooted in terror management theory (TMT; Greenberg, Pyszczynski, & Solomon, 1986) suggests that people are able to function effectively in the world, in part, by relying on effective sociocultural anxiety-buffer systems to protect against the awareness that life is fragile and fleeting. From the TMT perspective, death-anxiety is a threat to mental health, and adher-

ence to sociocultural values is a motivated buffering response to death-anxiety. Not everyone is able to effectively manage death-anxiety, however. According to anxiety buffer disruption theory (ABDT; Pyszczynski & Kesebir, 2011; Pyszczynski & Taylor, 2016), post-traumatic stress (PTS) may be the result of traumatic disruptions to such anxiety-buffer systems, and may thus leave people both unprotected from death anxiety, such that death anxiety remains chronically elevated even in the absence of stressors, and less able to effectively cope with life's ongoing challenges. As of yet, these central ideas have not been directly tested. The present research therefore recruited participants with low and high PTS and examined whether a task that is known to threaten individual's sociocultural anxiety-buffers—imagining close relationship problems—would impact both death anxiety and coping appraisals.

TMT AND THE DEATH-ANXIETY BUFFERING FUNCTION OF CLOSE RELATIONSHIPS

TMT (Greenberg et al., 1986; Greenberg, Vail, & Pyszczynski, 2014) suggests that humans rely on complex sociocultural systems to help manage the potential anxiety that might otherwise stem from an unbridled awareness of death, with a dual-component approach to mitigating that awareness (Routledge & Vess, 2018 for comprehensive review). The first component of TMT, cultural worldviews, comprise socially-validated systems that outline a meaningful set of beliefs, standards, and values through which adherents can achieve a sense of permanence via secular (e.g., legacy via progeny, students, art) or religious means (e.g., heaven, reincarnation). The second component, self-esteem, serves as an indicator of how well one is living up to these values. Thus, self-esteem helps manage potential death anxiety by affirming that one is indeed meeting the standards of one's permanence-promising cultural worldview.

From this perspective, close relationships represent a foundational pillar of psychological security because close relationships form the developmental basis of existential security (Bowlby, 1969; Mikulincer, Florian, & Hirschberger, 2003). At birth, infants are completely reliant on others for food, drink, shelter, and safety. As the infant matures, expressions of affection increasingly

become contingent on abiding by norms, expectations, and mores dictated by shared cultural worldviews. The learned contingency of security gradually generalizes to the child's broadening social sphere (e.g., schoolmates, friends, coworkers); these relationships also signal successful symbolic permanence (being remembered by friends and family after death, etc.). Therefore, acceptance into close relationships is a critical component of anxiety-buffering, psychological comfort, and security (Baumeister & Leary, 1995; Bowlby, 1988).

Close romantic relationships in adulthood are a particularly important existential resource (Mikulincer et al., 2003; Vail et al., 2012). Love between partners offers powerful emotional comfort and support; offers self-esteem as partners hold each other in high regard; and offers symbolic permanence via memory and progeny by setting the stage for procreation, expanding social networks of friends and family, and connecting with one's community. Thus, close romantic relationships can buffer against death anxiety by supporting the impression that one is both cherished and making valued contributions to the present and future of one's society.

CLOSE RELATIONSHIPS, ANXIETY BUFFER EFFECTIVENESS, AND COPING APPRAISAL

Research rooted in TMT has supported the role of close relationships as a buffer against death-related concerns. Death-related cognitions may prompt people to seek out close relationship partners: death reminders (vs. control topics) increase desire for intimacy (Mikulincer & Florian, 2000); increase effort toward establishing and maintaining romantic relationships (Florian, Mikulincer, & Hirschberger, 2002), especially when one's relationship partners are a source of positive regard (Cox & Arndt, 2012); and increase willingness to compromise on mate selection such that a less-than-perfect partner is preferred to no partner at all (Hirschberger, Florian, & Mikulincer, 2002). Likewise, mortality reminders do not increase worldview defense reactions and death awareness if participants are reminded of their romantic commitments (Florian et al., 2002), recall positive regard from their relationship partners (Cox & Arndt, 2012), or recall secure relationship partners or experiences (Mikulincer & Shaver, 2001).

Most relevant to the present work, the anxiety buffer hypothesis proposes that if a sociocultural factor, such as a close relationship, buffers against death awareness, undermining it will increase the experience of death-related thoughts and anxieties (Hayes, Schimel, Arndt, & Faucher, 2010; Juhl & Routledge, 2016). Indeed, threatening participants' self-esteem (Hayes, Schimel, Faucher, & Williams, 2008) or worldview beliefs (Schimel, Hayes, Williams, & Jahrig, 2007) increases cognitive death-thought accessibility; as does contemplating relationship problems (Florian et al., 2002) or separation from an important relationship partner (Mikulincer, Florian et al., 2002). No prior research has explored whether relationship threat also leads to affective consequences, such as death-related anxiety. Therefore, the first hypothesis of the present research was that, at least under normal conditions (when anxiety buffer systems are not disrupted), imagining relationship problems would increase death anxiety.

Although people may experience a momentary increase in death anxiety in reaction to such stressors, healthy individuals with intact anxiety buffer systems should continue to perceive themselves as able to effectively cope with life's challenges (Juhl & Routledge, 2016; Maxfield, John, & Pyszczynski, 2014; Vail et al., 2012). Thus, our second hypothesis was that participants' cognitive appraisal of their coping resources/abilities (secondary appraisals) should continue to meet or exceed the perceived challenges presented by life's ongoing stresses (primary appraisals of life's ups and downs; see Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 2000; Lazarus, 2007; Roseman, 2013)—at least under normal conditions—even if participants recall relationship problems and experience death anxiety.

POSTTRAUMATIC STRESS, ANXIETY-BUFFER DISRUPTION, AND INABILITY TO COPE

Although buffering against death-anxiety may be a normative and adaptive orientation, deviations from this typical pattern may exist; particularly in individuals with high levels of PTS. As proposed by ABDT (Pyszczynski & Kesebir, 2011), traumatic events can overwhelm anxiety-buffer systems by vividly dem-

onstrating that maintaining adherence to one's cultural standards and values are ineffective at staving off the harsh, dangerous, chaotic realities of the world (Janoff-Bulman, 1992). Thus, individuals with high PTS may be unable to effectively buffer death-related thoughts and anxieties—even in the absence of stressors—and may perceive inability to cope. Implications of failure to effectively manage death anxiety include disordered functioning and anxiety symptoms (Juhl & Routledge, 2016); and death reminders can precipitate anxiety and deficits in psychological well-being (Edmondson et al., 2011; Routledge et al., 2010; Routledge & Juhl, 2010); exacerbate anxiety disorders and depression (Menzies & Dar-Nimrod, 2017; Simon, Arndt, Greenberg, Pyszczynski, & Solomon, 1998; Strachan et al., 2007); and impair self-regulation (Gailliot, Schmeichel, & Baumeister, 2006).

ABDT-informed research has investigated whether people with PTS or pre-diagnostic vulnerabilities respond to death reminders by engaging in typical worldview defense responses. If PTS involves anxiety-buffer disruption, death reminders should not lead to buffering response among people with high PTS. Indeed, a study conducted in Iran a month after a deadly 2005 earthquake, death and earthquake reminders caused increased worldview defense (indicating a "healthy" buffering response) among participants with low, but not high, peri-traumatic dissociation (Abdollahi, Pyszczynski, Maxfield, & Luszczynska, 2011). Among female victims of domestic violence in Poland, death reminders motivated worldview defense among women with low, but not high, PTS symptoms (Kesebir, Luszczynska, Pyszczynski, & Benight, 2011).

Similar research has explored whether PTS reflects ineffective buffering against heightened death awareness. For example, in one study (Vail, Morgan, & Kahle, 2018), participants with low and with high PTS were reminded of death (vs. control), engaged in a self-affirmation task (a known anxiety-buffering activity) or a neutral topic, and completed a measure of death-related cognition. Consistent with ABDT, when reminded of death, the low PTS group were buffered against thoughts of death in the self-affirmation condition (vs. control), replicating prior findings (Schmeichel & Martens, 2005) that self-affirmation functions as an effective anxiety-buffer. In contrast, when reminded of death, the high PTS symptom group showed heightened death-thought in both the no-self-affirmation and the self-affirmation condition—

indicating that self-affirmation no longer effectively buffered against death-related cognitions.

No research has yet tested whether close relationship buffers may be similarly disrupted in those with high levels of PTS. The third hypothesis of the present research, therefore, was that participants with high PTS exhibit high levels of death anxiety, both when a stressor is present and when it is not present—reflecting general disruption of the sociocultural anxiety-buffer system. In addition, no experimental research exists on the link between anxiety buffer functioning and coping appraisals—an important determinant of coping success (Folkman et al., 2000; Lazarus, 2007; Roseman, 2013). Close relationships, social support, and the ability to process traumatic events with close others have been associated with more rapid recovery (Helgeson, Jakubiak, Van Vleet, & Zajdel, 2018; Lewis et al., 2006) and secure relationships may be an important coping resource for individuals with elevated PTS (Dieperink, Leskela, Thuras, & Engdahl, 2001). If, as ABDT suggests, PTS reflects sociocultural anxiety buffer disruption, individuals with high PTS should also perceive themselves as less able to cope with life's stressors in general; presence of social stressors may even further overwhelm their perceived ability to cope. Thus, the fourth hypothesis of the present research was that high PTS participants generally perceive an inability to cope with life stressors, and that their perceived coping resources/abilities are even more strongly overwhelmed when prompted to consider a stressor (relationship problems) that may undermine a primary source of coping.

THE PRESENT RESEARCH

Relatively little research has specifically explored the role of close relationships in buffering against death awareness and maintaining effective coping appraisals; no work has explored the existential function of close relationships among individuals with high PTS. The present research is the first to explore whether anxiety buffer disruption also extends to other sociocultural buffers beyond worldview beliefs—such as close relationships—exploring the impact of relationship-threat on affect (death-anxiety) and perceived coping ability in populations with an otherwise normal (intact) sociocultural buffer system (i.e., low PTS

group) and in those vulnerable to anxiety-buffer disruption (i.e., high PTS group). We first prescreened participants into low and high posttraumatic stress symptom groups. Then, participants in each group were randomly assigned to either a relationship-problem or control condition, resulting in a 2 (group: low vs. high PTS) \times 2 (problem: relationship vs. control) design. Finally, participants reported death anxiety, and perceived coping ability. We hypothesized the following:

Among the low PTS group:

1. Death anxiety would be elevated in the relationship-threat condition (vs. control).
2. Appraisal of coping resources/abilities (secondary appraisals) would continue to meet or exceed the perceived challenges (primary appraisals) in both conditions.

Among the high PTS group:

3. Death anxiety would be elevated in both the relationship-threat *and* control condition.
4. Appraisal of coping resources/abilities would be outweighed by perceived challenges in the control condition; this would be exacerbated when considering relationship-problems.

METHOD

PARTICIPANTS AND PROCEDURE

Sample Size Planning. The present research adopted the strategy of selecting a "minimally important effect size" threshold to determine sample size. Using an a-priori power analysis for *F*-family tests for ANOVA (G*Power; Faul, Erdfelder, Buchner, & Lang, 2009), we selected a small minimum effect size threshold of $f = .15$ ($\eta_p^2 = .02$) and set power to .80 for detecting effects at $p = .05$, with 1 *df* and 4 groups. This analysis recommended a target sample size of 351 participants.

General Procedure. From March 23 to April 3, 2017, the Posttraumatic-stress Check List—Civilian version (PCL-C; Weathers,

Litz, Herman, Huska, & Keane, 1993) was administered via online survey (Qualtrics, Provo, UT) to build a panel of possible participants. On April 10, primary study materials were administered to two groups of panel members: one group scoring above the PCL-C diagnostic threshold, and one group with sub-threshold PCL-C scores. Approval was obtained from Cleveland State University IRB. Study materials (see supplement), anonymized data, and code are available here: osf.io/w29qr.

Post-Traumatic Stress Assessment and Participant Selection. The PCL-C is a 17-item self-report measure adapted from the three DSM-IV PTSD symptom clusters listed in the DSM-IV (American Psychiatric Association, 2000). Participants rated on a scale of 1 (not at all) to 5 (extremely) the degree to which they were bothered in the past month by each symptom (range = 17, 85). The PCL-C has good internal consistency, test-retest reliability, and diagnostic efficiency using a cutoff/threshold score of 44 for PTSD caseness (e.g., Blanchard, 1996; Norris & Hamblen, 2004, for review).

In the present study, the PCL-C was distributed to 4,139 respondents, in exchange for U.S. \$0.20. Of those providing data (4,048), 3,911 accurately responded to an attentiveness-check item and were retained as valid panel members. The PCL-C demonstrated good internal consistency ($\alpha = .94$), with a typical positively skewed distribution of scores, skewness (SE) = .67 (.04); kurtosis (SE) = -.28 (.08); Median = 34; $M = 36.10$, $SD = 13.76$.

Panel members with PCL-C scores of 44 or above were designated as eligible for the high PTS group. This caseness score was approximately equal to the upper quartile score of 45. The lower quartile, PCL-C scores of 25 or below, was used to designate the eligible "low PTS" group. Eligible low PTS ($n = 1065$) and high PTS ($n = 1117$) respondents were invited to participate in the primary study for an additional U.S. \$1.40. Of the 484 respondents who accepted the invitation, 417 completed the manipulation prompts, 395 completed the death anxiety measure, and 394 completed the coping measure. A total of 373 respondents provided accurate responses to an attentiveness-check and were retained, with approximately equal allocation to each group: low PTS ($n = 187$; PCL-C: Median = 21; $M = 21.09$, $SD = 2.61$) and high PTS ($n = 186$; PCL-C: Median = 52; $M = 53.33$, $SD = 7.77$).

MEASURES

The study link was distributed using a neutral title and description (Social Attitudes Survey) to conceal study hypotheses. Participants completed informed consent and a brief set of filler items, and then the target materials were presented in the following order:

Relationship Threat Manipulation. Following previous research (Florian et al., 2002), participants were randomly assigned to either a relationship-problems or a control condition. In the relationship-problems condition, two prompts asked participants to, "Please briefly describe some of the problems that you have experienced in your current, or most recent, romantic relationship," and "Please briefly describe the thoughts and emotions evoked when you consider some of the problems in your current, or most recent, romantic relationship." The control condition used prompts about academic problems (. . . in your current, or most recent, academic studies) to hold negativity constant across conditions.

Death Anxiety. Death anxiety was measured using the 14-item ($\alpha = .95$) Death of Self subscale from the Revised Collett-Lester Fear of Death Scale (Lester, 1994). Participants indicated how anxious they felt about death and dying (e.g., ". . . the shortness of life," ". . . the thought of never thinking or experiencing anything again," ". . . the thought of the pain of dying," on a 6-point Likert-type scale ranging from 1 (Strongly disagree) to 6 (Strongly agree). Overall mean scores were computed; higher scores indicated greater death anxiety.

Perceived Coping Ability. Coping appraisals were measured following established methods (Kibler & Lyons, 2004), using two items capturing primary coping appraisal (I expect it to be difficult to cope with life's ups and downs) and secondary coping appraisal (I am able to cope with life's ups and downs), rated on a 6-point Likert-scale ranging from 1 (Strongly disagree) to 6 (Strongly agree). These items were largely independent, $r(370) = -.37, p < .01$. Following prior research (Kibler & Lyons, 2004), a perceived coping ability score was computed by subtracting the primary appraisal item from the secondary appraisal item; positive values indicate participants rated their coping abilities

as more than sufficient compared to perceived life challenges, whereas negative values indicate participants rated their coping abilities as insufficient compared to life's challenges.

DEMOGRAPHICS

Participants reported their age, sex, ethnicity, race, education level, religion and political orientation, and relationship history and status (see Supplemental Materials Table S1). Low and high PTS groups did not differ in sex $\chi^2[1] = 2.65, p = .10$, race $\chi^2[4] = 1.66, p = .80$, ethnicity $\chi^2[1] = .42, p = .52$, or prior $\chi^2[1] = 1.99, p = .16$, or current $\chi^2[1] = .11, p = .74$ romantic relationships. High PTS participants were about 6 years younger, $t(370) = -5.02, p < .001$, with about one half a year less education $t(368) = -2.22, p = .03$, were more politically liberal $t(371) = 3.61, p < .001$, and were proportionally fewer religious believers and proportionally more Other, Spiritual but not religious, and Agnostics $\chi^2[8] = 18.68, p = .02$. High PTS participants reported shorter durations of their longest romantic relationship ~4.5 years shorter, $t(351) = -4.48, p < .001$, and current romantic relationship ~4 years shorter; $t(269) = -3.57, p = .001$, and had with fewer married and more divorced, separated, or never married participants $\chi^2[4] = 16.65, p = .002$.

DATA ANALYSES

SPSS was used to conduct the various ANOVAs, pairwise comparisons, and ancillary analyses described below. Participants who provided partial data or discontinued the study were excluded list-wise, as described in detail above.

RESULTS

DEATH ANXIETY

A 2 (group: low vs. high PTS) \times 2 (problem: relationship vs. academic) ANOVA revealed an unqualified main effect of trauma group $F(1, 369) = 92.45, \eta_p^2 = .20, p < .001$, such that death anxiety

was higher among the high PTS group ($M = 4.20$, $SD = 1.08$) than among the low PTS group ($M = 3.09$, $SD = 1.15$). There was also a main effect of relationship threat $F(1, 369) = 9.37$, $\eta_p^2 = .03$, $p = .002$: death anxiety was higher in the relationship threat condition. This was qualified by the expected interaction, $F(1, 369) = 4.47$, $\eta_p^2 = .01$, $p = .035$ (Figure 1, Panel A). Among the low PTS group, death anxiety was higher in the relationship-problem ($M = 3.40$, $SD = 1.24$) than the academic-problem condition ($M = 2.81$, $SD = .99$), $t(185) = 3.66$, $d = .53$ (95%CI: .24, .82), $p < .001$. Among the high PTS group, death anxiety was high and not statistically different between the relationship-problem ($M = 4.26$, $SD = 1.11$) and the academic-problem condition ($M = 4.15$, $SD = 1.06$), $t(184) = .67$, $d = -.10$ (95%CI: $-.19, .39$), $p = .50$.

PERCEIVED COPING ABILITY

A 2 (group: low vs. high PTS) \times 2 (problem: relationship vs. academic) ANOVA revealed an unqualified main effect of trauma group $F(1, 367) = 187.27$, $\eta_p^2 = .34$, $p < .001$, such that perceived coping ability was higher among the low PTS group ($M = 1.53$, $SD = 1.61$) than among the high PTS group ($M = -.76$, $SD = 1.63$). There was also a main effect of relationship threat $F(1, 367) = 7.60$, $\eta_p^2 = .02$, $p = .006$. Perceived coping ability was lower in the relationship threat condition, though this was qualified by the expected interaction, $F(1, 367) = 4.54$, $\eta_p^2 = .01$, $p = .03$ (Figure 1, Panel B). Among the low PTS group, perceived coping ability was high and not statistically different between the relationship-problem ($M = 1.47$, $SD = 1.60$) and academic-problem condition ($M = 1.58$, $SD = 1.64$), $t(184) = -.44$, $d = -.06$ (95%CI: $-.35, .24$), $p = .66$. In contrast, among the high PTS group, perceived coping ability was low, and lower in the relationship-problem ($M = -1.16$, $SD = 1.43$) than the academic-problem condition ($M = -.35$, $SD = 1.73$), $t(183) = -5.34$, $d = -.51$ (95%CI: $-.80, -.06$), $p = .001$.

ANCILLARY ANALYSES: DEMOGRAPHIC CHARACTERISTICS

Ancillary analyses were conducted to explore the possibility that the moderating effect of posttraumatic stress group in the inter-

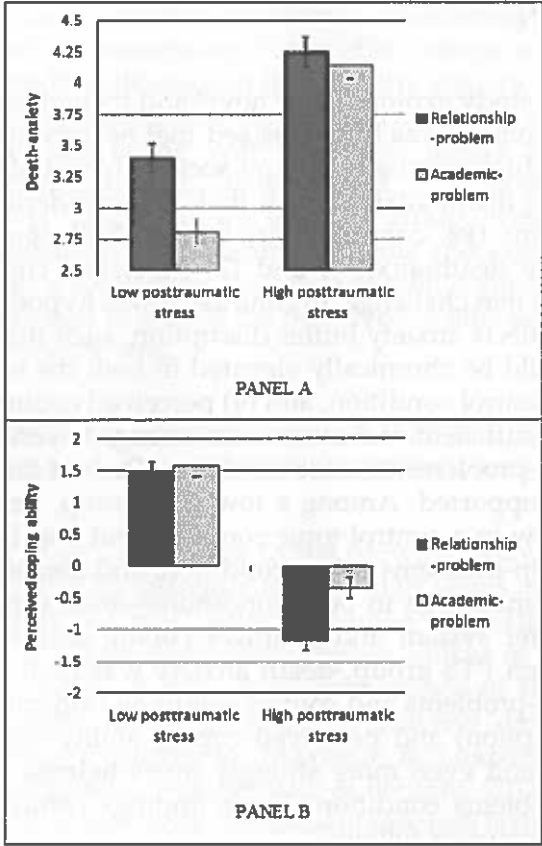


FIGURE 1. The effect of relationship threat manipulation on death anxiety (Panel A) and perceived coping ability (Panel B) among samples of individuals with low and high posttraumatic stress.

actions were due to the observed differences in age, education level, political orientation, religion, duration of current relationship, and marital status of each group (described above). However, no Demographic*Threat interactions emerged on either outcome, indicating that although these demographic characteristics were associated with posttraumatic stress, none of them produced similar moderating effects and were thus not viable as possible underlying/explanatory factors. Furthermore, the reported interaction patterns on death anxiety and perceived coping ability were unaltered when controlling for these demographic variables (see supplemental materials for details).

DISCUSSION

The present study explored four novel and theoretically integrative predictions. It was hypothesized that healthy, non-traumatized individuals normally rely on sociocultural buffer systems to cope with death anxiety, such that: (1) considering relationship problems (vs. control topic) would challenge the buffer and increase death-anxiety; and (2) perceived coping ability should meet that challenge. In contrast, it was hypothesized that high PTS reflects anxiety buffer disruption, such that: (3) death anxiety would be chronically elevated in both the relationship-threat and control condition; and (4) perceived coping would be generally insufficient and even more strongly overwhelmed in relationship-problems stressor condition. Each of these hypotheses were supported. Among a low PTS group, death anxiety remained low in a control topic condition but was increased in a relationship-problems prime condition, and perceived coping ability remained high in both conditions—indicating an intact anxiety buffer system and adaptive coping ability. However, among a high PTS group, death anxiety was high in both the relationship-problems and control condition (indicating anxiety buffer disruption) and perceived coping ability was generally insufficient and even more strongly overwhelmed in the relationship-problems condition. These findings contribute to the broader literature as follows.

IMPLICATIONS FOR HEALTHY ANXIETY BUFFER FUNCTIONING

This work converges with the basic TMT perspective that much of human activity is geared toward managing death-anxiety (Greenberg et al., 2014) and that close relationships help serve this function (Cox & Arndt, 2012; Florian et al., 2002; Hirschberger et al., 2002; Mikulincer & Florian, 2000; Mikulincer, Florian, Birnbaum, & Malishkevich, 2002; Mikulincer et al., 2003; Mikulincer & Shaver, 2001). The present work extends previous findings by showing that death-anxiety becomes elevated when relationships problems are salient, and is the first to find

that, at least under normal conditions, considering relationship problems undermines anxiety buffer effectiveness and increases death anxiety. Results suggest that healthy anxiety buffer functioning relies, at least in part, on maintaining social connections. Furthermore, interfacing with appraisal theory perspectives on coping (Folkman et al., 2000; Lazarus, 2007; Roseman, 2013) revealed novel insights: in the low PTS group, even when participants considered relationship problems and experienced increased death anxiety, their appraisal of their coping resources/abilities continued to exceed the perceived challenges presented by life's ups and downs.

IMPLICATIONS FOR ANXIETY BUFFER DYSFUNCTION, MENTAL HEALTH, AND PERCEIVED COPING ABILITY

The present work contributes to the growing body of research evaluating ADBT in individuals with high levels of PTS. Prior research has found that, when reminded of death, high PTS participants failed to effectively suppress spikes in death-related cognition (Chatard et al., 2012; Edmondson et al., 2011) and failed to engage otherwise-typical worldview defensive buffers (Abdollahi, Pyszczynski, Maxfield, & Luszczynska, 2011; Kesebir, Luszczynska, Pyszczynski, & Benight, 2011; Vail et al., 2018). Extending that work, the present research is the first to examine death related *anxiety*, finding that participants with high PTS exhibited exceptionally high levels of death anxiety in the relationship-problems *and* the control condition—reflecting a general disruption of their sociocultural anxiety-buffer system. This is important because failure to effectively manage death anxiety can potentiate anxiety-related symptoms and disordered functioning (Edmondson et al., 2011; Gailliot et al., 2006; Juhl & Routledge, 2016; Maxfield et al., 2014; Menzies & Dar-Nimrod, 2017; Routledge et al., 2010; Routledge & Juhl, 2010; Simon et al., 1998; Strachan et al., 2007). The present study also offered novel insight to these dynamics: these negative effects may be due, in part, to coping failure. High PTS participants generally did not perceive that they had sufficient ability to cope with life's stressors, and coping abilities were even more strongly overwhelmed

when considering a stressor that could undermine socially-based coping resources.

The present research also has implications for therapeutic treatment of PTS. Common evidence-based treatments for PTSD include cognitive processing therapy (CPT; e.g., Galovski, Wachen, Chard, Monson, & Resick, 2015) and prolonged exposure (PE; e.g., Foa et al., 2005), which emphasize repeated mental and in vivo exposure, coupled with anxiety management techniques. This and prior ABDT work (Maxfield et al., 2014) suggests effective treatment might also seek to restore effective anxiety buffer functioning (Lewis, 2014; Major, Whelton, & Duff, 2016) by helping clients rebuild effective sociocultural buffer systems, identifying and committing to meaningful cultural belief systems, and reestablishing close social relationships.

LIMITATIONS AND FUTURE DIRECTIONS

Several limitations and should be acknowledged. First, the PCL-C measure corresponds to the DSM-IV; a PCL-5 has been developed to correspond to the updated DSM-5 criteria. The PCL measures PTS symptomology only, not the quantity, quality, or diversity of traumatic experiences or comorbid conditions. Future research could investigate the role of specific experiences and resilience factors in anxiety buffer disruption. Future work might also investigate the role of coping appraisals in determining when a traumatic event influences anxiety buffer disruption, PTS symptoms, and other mental and behavioral health outcomes (e.g., sleep patterns, cardiovascular risk factors). Research is also needed to parse whether relationship stressors uniquely undermine coping appraisals, as compared to other worldview-based threats that are individually focused (e.g., self-esteem, or faith in one's beliefs, standards, and values). Future research may also investigate bidirectional associations between PTS and anxiety-buffer disruption/lack of coping resources. Lastly, demographic variables were associated with PTS groups; however, demographic differences were not viable explanations for study results.

CONCLUSION

The present study offers new theory-driven and data-based insights about the nature of effective sociocultural anxiety buffer functioning and the impact of PTS on that process, finding that, when individuals with low PTS contemplated relationship problems, they experienced moderately heightened death anxiety yet continued to perceive strong coping ability. In contrast, those with high PTS reported high death anxiety in both the relationship problems and the control condition; they furthermore reported insufficient coping ability in general, with perceived coping ability particularly overwhelmed after contemplating relationship problems. This latter finding highlights vulnerability to coping failure under conditions associated with anxiety buffer disruption. These findings bear implications for the current understanding of PTSD and its treatment, because failure to effectively cope with death anxiety is known to impact physical and mental health and may potentially represent a key risk factor in PTSD symptoms and outcomes.

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