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When death is not a problem: Regulating implicit negative affect under mortality salience

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Terror management theory assumes that death arouses existential anxiety in humans which is suppressed in focal attention. Whereas most studies provide indirect evidence for negative affect under mortality salience by showing cultural worldview defenses and self-esteem strivings, there is only little direct evidence for implicit negative affect under mortality salience. In the present study, we assume that this implicit affective reaction towards death depends on people's ability to self-regulate negative affect as assessed by the personality dimension of action versus state orientation. Consistent with our expectations, action-oriented participants judged artificial words to express less negative affect under mortality salience compared to control conditions whereas state-oriented participants showed the reversed pattern.

Key words: Terror management, implicit negative affect, affect-regulation, action orientation.

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INTRODUCTION

Life's a laugh and death's a joke it's true (Monty Python; Goldstone & Jones, 1979).

Not everyone can handle death with the sense of humor of Monty Python. In fact, it is a common assumption that death arouses existential anxiety in people. However, following terror management theory (Pyszczynski, Greenberg & Solomon, 1999; Rosenblatt, Greenberg, Solomon, Pyszczynski & Lyon, 1989; Solomon, Greenberg & Pyszczynski, 2004), this anxiety is suppressed in consciousness although it remains highly accessible out of focal attention (Arndt, Greenberg, Solomon, Pyszczynski & Simon, 1997; Greenberg, Arndt, Schimel, Pyszczynski & Solomon, 2001; Greenberg, Pyszczynski, Solomon, Simon & Breus, 1994). Even in the citation of Monty Python, death is rationalized and negative affect not mentioned or suppressed – as terror management theory would say. Especially distal coping strategies like cultural worldview defense (e.g., Arndt, Lieberman, Cook & Solomon, 2005; Greenberg, Simon, Harmon-Jones, Solomon, Pyszczynski & Lyon, 1995) are perceived as evidence that people try to cope with death-related anxiety that persists out of focal attention. However, until now direct evidence for death-related anxiety is rare although methods that measure implicit negative affect should reveal the affective reaction towards death. Additionally, one might wonder what effect the ability to self-regulate such anxiety has on implicit negative affect under mortality salience. In this study, we explore whether individual differences in the ability to self-regulate affect moderate implicit negative affect in response to mortality salience.

TERROR MANAGEMENT AND AFFECT

Terror management theory assumes that death-related negative affect is not experienced because it is suppressed from

consciousness but remains at work unconsciously (Pyszczynski, *et al.*, 1999). Consistent with this assumption, questionnaires failed to show an increase of negative affect like anxiety after a mortality salience induction (for an overview see Solomon *et al.*, 2004). However, indirect evidence for implicit negative affect is cultural worldview defense, as it is understood as the attempt to cope with negative affect out of focal attention. It is assumed that the symbolic immortality one may gain through identifying with a persisting culture may outweigh the anxiety connected to the individual death (Dechesne, Pyszczynski, T., Arndt *et al.*, 2003; Greenberg, Arndt, Simon, Pyszczynski & Solomon, 2000; Solomon *et al.*, 2004).

Furthermore, the anxiety-buffering effect of self-esteem – especially high implicit self-esteem – is considered as evidence for the presence of implicit anxiety (e.g., Burke, Martens & Faucher, 2010; Greenberg *et al.*, 1992; Hayes, Schimel, Faucher & Williams, 2008). For example, Schmeichel and colleagues (2009) demonstrated less cultural worldview defense if people had high implicit self-esteem on a trait level or if implicit self-esteem was boosted by a positive personality feedback. It is assumed that high (implicit) self-esteem buffers death-related anxiety so that people have no need to cope with mortality salience by later cultural worldview defense.

In addition to this indirect evidence, neural correlates demonstrate the affective reaction towards death (Quirin, Lyktyushin, Arndt *et al.*, 2012). Finally, Lüdecke and Baumann (forthcoming) demonstrated an increase of implicit anxiety under mortality salience. They demonstrated that, compared to control conditions, participants under mortality salience wrote significantly more stories referring to implicit anxiety in the Operant Motive Test (OMT; Kuhl & Scheffer, 1999) and judged artificial words to express more anxiety in the Implicit Positive and Negative Affect Test (IPANAT; Quirin, Kazén & Kuhl, 2009). These studies demonstrated the presence of affective

reactions after reminders of death. However, research on the modulation of such affective reactions through individual differences in affect-regulation is still missing.

AFFECT-REGULATION UNDER MORTALITY SALIENCE

Several studies investigated individual differences that help people to cope with death-related anxiety. Gailliot, Schmeichel and Baumeister (2006) have shown that high trait self-control helped to suppress death-related thoughts and resulted in less cultural worldview defense compared to low trait self-control. Ferraro, Shiv, and Bettman (2005) demonstrated that self-control was an important skill in defending aspects of the self that were an important source of explicit self-esteem.

People do not only differ in their ability to suppress or consciously control negative affect but also in their ability to regulate affect intuitively (Koole & Jostmann, 2004). Intuitive affect regulation is defined as a flexible, efficient, and nonrepressive control of own affective states and assessed by the personality dimension of action versus state orientation (Baumann, Kaschel & Kuhl, 2007; Baumann & Kuhl, 2002; Kuhl, 1994). Koole and Jostmann (2004), for example, demonstrated that action-oriented individuals were able to down-regulate negative affect intuitively whereas state-oriented individuals suffered under demanding conditions because they were not able to self-regulate negative affect. In their studies, action orientation was distinct from other emotion regulation strategies such as reappraisal and suppression (cf. Gross & John, 2003) and supported by increased accessibility to the implicit self.

In studies in the realm of terror management theory, action-oriented participants have been found to overcome the intrinsic association between death and wilderness more often than state-oriented participants (Koole & Van den Berg, 2005). Further evidence that action orientation shapes the nature of people's coping with mortality salience has been obtained by Kazén, Baumann and Kuhl (2005) in a student sample in Germany. In this cultural context, in which, for historical reasons, national pride is judged negatively, only action-oriented participants were able to utilize national pride as a coping strategy for dealing with mortality salience. Taken together, the findings are first clues that action and state orientation differentially cope with mortality salience.

METHOD

In the present study, we aimed at integrating the approaches reviewed above. Therefore, we explored the effects of high versus low affect-regulation skills on implicit negative affect under mortality salience. We assumed that people with high affect-regulation skills (action orientation) experience less implicit negative affect under mortality salience than people with low affect-regulation skills (state orientation). Because self-esteem has been proposed to buffer death-related anxiety (e.g., Greenberg *et al.*, 1992; Greenberg, Pyszczynski, Solomon, Pinel, Simon & Jordan, 1993; Hayes *et al.*, 2008), we controlled for self-esteem in our study.

Participants

Sixty high school students (37 female and 23 male) voluntarily participated in the experiment. Their age ranged from 15 to 18 years

($M = 15.94$; $SD = 0.76$). Data from five participants were excluded from analyses because of incomplete questionnaires.

Materials

Self-esteem. The German translation of Rosenberg's Self-Esteem Scale (Ferring & Filipp, 1996; Rosenberg, 1965) was administered to assess self-esteem. Participants rated their agreement to ten statements (Cronbach's $\alpha = 0.81$) on a four-point scale (1 = *not at all true of me*; 4 = *very strongly true of me*). Item scores were summed up to calculate overall self-esteem.

Action orientation. The Action Control Scale (ACS-90; Kuhl, 1994) was administered to assess action versus state orientation. For the present purpose, action versus state orientation after failure (AOF) was relevant because it assesses the high versus low ability to self-regulate negative affect. An example item is: "When I am told that my work has been completely unsatisfactory: (a) I don't let it bother me for too long, or (b) I feel paralyzed." Whereas option "a" reflects action orientation, option "b" reflects state orientation. The scale consists of twelve items (Cronbach's $\alpha = 0.78$; for further information on reliability and validity see Diefendorff, Hall, Lord & Streat, 2000; Kuhl & Beckmann, 1994; Wojdylo, Kazén, Kuhl & Mitina, 2014). For an overall score of action orientation, all action-oriented responses were summed up. As there was a skewed distribution, we tested for normal distribution. The Kolmogorov-Smirnov-Test was significant ($statistic = 0.131$, $df = 57$, $p < 0.02$) indicating a significant deviation from a normal distribution. Therefore, we dichotomized the scale using the common norms with scores of 0–4 indicating low action orientation (i.e., state orientation) and scores of 5–12 indicating high action orientation (Kuhl, 1994).

Explicit mood. To assess explicit affect, we used a 23-item adjective check-list, including items from the PANAS (Watson, Clark & Tellegen, 1988; German Version: Krohne, Egloff, Kohlmann & Tausch, 1996). Scales for positive affect (Cronbach's $\alpha = 0.89$) and negative affect (Cronbach's $\alpha = 0.70$) consisted of three items, respectively, to be rated on a four-point scale (1 = *not at all true of me*; 4 = *very strongly true of me*). The positive affect scale included the items joyful [freudig], cheerful [gutgelaunt], and happy [fröhlich]. The negative affect scale included the items helpless [hilfllos], perplexed [ratlos], and inhibited [gehemmt]. Item scores were averaged to calculate overall positive and negative affect.

Implicit mood. To assess implicit affect, we used the Implicit Positive and Negative Affect Test (IPANAT; Quirin *et al.*, 2009) in which five artificial words (SAFME, VIKES, TUNAB, TALEP, and SUKOV) were each presented with positive and negative emotional words. The general idea is that people imbue even nonsense words with their momentary (implicit) affect. Instructions explained that the artificial words are intended to express various moods and that in many cases words sound like the object they describe (for example, the word *rattle* almost sounds like something that rattles). We presented the five artificial words with three positive (cheerful [gutgelaunt], happy [fröhlich] and energetic [aktiv]), and three negative emotional words (helpless [hilfllos], tense [verkrampft] and inhibited [gehemmt]), respectively. Participants indicated on a six-point scale to which extent each artificial word fits to the emotional adjectives (1 = *doesn't fit at all*; 6 = *fits very well*). The artificial words had been pretested for a priori pleasantness, familiarity, semantic meaning, as well as associative value. Overall implicit positive affect (Cronbach's $\alpha = 0.76$) and implicit negative affect (Cronbach's $\alpha = 0.85$) were computed by averaging scores for each emotional word (e.g., cheerful) across artificial words and then averaging scores across all positive and negative emotional words, respectively.

Death-thought accessibility. For assessing death-thought accessibility, we used a word-stem completion task with death-related stems which were already used in Germany (Fritsche, Jonas, Fischer, Koranyi, Berger & Fleischmann, 2007). Participants were asked to fill out 19 word-stems

including six items referring to death-related words (like grave [Grab], death/dead [Tod, tot]). The other 13 items were neutral filler items, like rest [Ruhe] or bank [Bank]. Scores were calculated by summing all death-related words, so that scores range from 1 to 6.

Procedure

Participants were tested in groups. They were randomly assigned to the mortality salience versus control condition. Twenty-seven participants were assigned to the mortality salience group and twenty-eight were assigned to the control group. The investigator ensured privacy and explained that the aim of the study was to investigate relationships between personality traits and feelings in different situations. After some general instructions, the questionnaire started with an assessment of baseline implicit affect, action orientation, and self-esteem. Next, mortality salience was induced by the commonly used death-questionnaire by Rosenblatt and colleagues (1989): *Please briefly describe the emotions that the thought of your own death arouses in you, and Please describe, what you think will happen to you as you die and once you are dead.* Participants in the control condition answered the same questions concerning dental pain. This was followed by the assessment of explicit affect, a word-stem completion task indicating the accessibility of death-related thoughts, and a second assessment of implicit affect. Finally participants were debriefed, thanked for their participation, and dismissed.

RESULTS

Descriptive data and correlations are provided in Table 1. In our sample, we found a significant correlation between death-thought accessibility and explicit negative affect, $r = 0.34$, $p < 0.05$, which is unusual and discussed later on. A partial correlation of explicit negative affect and death-thought accessibility controlling for condition and action orientation remained significant, $r = 0.33$, $p < 0.05$, indicating that, independently from condition and personality, higher explicit negative affect was associated with higher death-thought accessibility.

Manipulation check: death-thought accessibility

As a manipulation check, we conducted a 2 (Condition: control vs. mortality salience) \times 2 (Personality: state vs. action orientation) analysis of variance (ANOVA) with death-thought accessibility as a dependent variable. Consistent with the literature, the analysis revealed a significant main effect of condition, $F(1, 51) = 7.40$, $p < 0.01$, $\eta_p^2 = 0.127$, with higher death-thought accessibility under mortality salience ($M = 2.07$, $SD = 1.52$) compared to

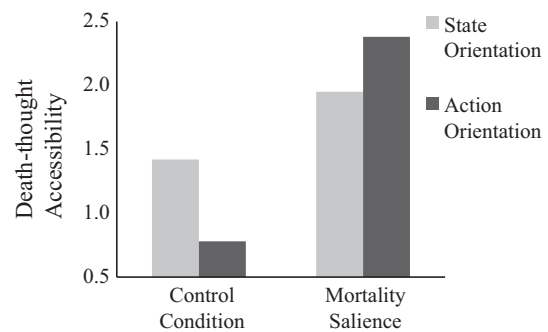


Fig. 1. Death-thought accessibility (i.e., number of death-related words) as a function of experimental condition and action orientation.

control conditions ($M = 1.21$, $SD = 1.13$). This indicates a successful manipulation of mortality salience. Action orientation did not have a significant main effect on death-thought accessibility, $F(1, 51) = 0.80$, $\eta_p^2 = 0.001$, *ns.* Furthermore, the Condition \times Personality interaction was not significant, $F(1, 51) = 1.89$, $\eta_p^2 = 0.036$, *ns.*, indicating that the manipulation was equally successful for action- and state-oriented participants. As depicted in Fig. 1, on a descriptive level, the increase in death-thought accessibility under mortality salience was even stronger among action-oriented (mortality salience: $M = 2.38$, $SD = 2.20$; control condition: $M = 0.78$, $SD = 0.83$) compared to state-oriented participants (mortality salience: $M = 1.94$, $SD = 1.18$; control condition: $M = 1.42$, $SD = 1.22$).

Implicit affect

In order to analyze effects of mortality salience and action orientation on implicit negative affect, we conducted a 2 (Condition: control vs. mortality salience) \times 2 (Personality: state vs. action orientation) analysis of covariance (ANCOVA) with baseline implicit negative affect as a covariate. The analysis revealed that there were no significant main effects of condition, $F(1, 50) = 0.49$, $\eta_p^2 = 0.010$, *ns.*, and action orientation, $F(1, 50) = 0.22$, $\eta_p^2 = 0.004$, *ns.* Consistent with expectations, the analysis revealed a significant Condition \times Personality interaction, $F(1, 50) = 5.40$, $p < 0.05$, $\eta_p^2 = 0.097$. As depicted in Fig. 2, state-oriented participants had higher implicit negative affect under mortality salience ($M = 3.00$, $SD = 0.70$) compared

Table 1. Summary of Means, Standard Deviations, and Intercorrelations

	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	<i>M</i>	<i>SD</i>
(1) Action Orientation	0.34*	0.04	0.15	-0.05	-0.02	0.12	-0.24	-0.12	3.67	2.69
(2) Self-esteem		-0.01	0.15	-0.03	-0.12	0.45**	-0.43**	-0.19	28.94	4.47
(3) Implicit Positive Affect at T1			0.65**	0.26	0.15	0.19	0.08	0.06	3.35	0.48
(4) Implicit Positive Affect at T2				0.26	-0.02	0.14	-0.02	-0.01	3.35	0.64
(5) Implicit Negative Affect at T1					0.66**	-0.02	0.21	0.18	2.94	0.54
(6) Implicit Negative Affect at T2						-0.17	0.16	0.23	2.83	0.69
(7) Explicit Positive Affect							-0.38**	-0.22	2.20	0.70
(8) Explicit Negative Affect								0.34*	1.62	0.66
(9) Death-thought Accessibility									1.64	1.39

Note: Implicit and explicit affect are post-induction measures.

* $p < 0.05$; ** $p < 0.01$.

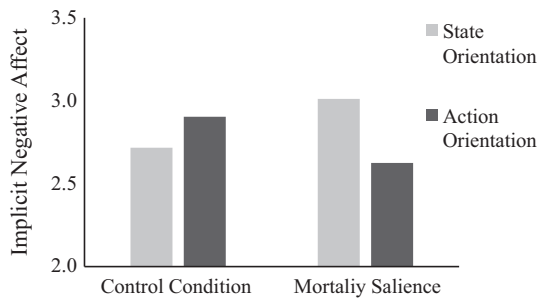


Fig. 2. Implicit negative affect in the IPANAT (Quirin *et al.*, 2009) as a function of experimental condition and action orientation.

to control conditions ($M = 2.72$, $SD = 0.55$). Action-oriented participants, in contrast, had lower implicit negative affect under mortality salience ($M = 2.63$, $SD = 0.89$) compared to control conditions ($M = 2.90$, $SD = 0.56$).

For post hoc tests, we calculated residual values of implicit negative affect at T2 (i.e., we regressed T1 out of T2) and conducted t -tests. Whereas state- and action-oriented participants differed significantly concerning implicit negative affect in the mortality salience condition ($t(25) = 1.94$, $p < 0.05$, one-sided test), they did not differ significantly in the control condition ($t(26) = -1.34$, ns). Comparing state-oriented participants solely, they did not differ significantly in implicit negative affect in the mortality salience versus the control condition, this effect was only marginally significant ($t(36) = 1.27$, $p = 0.10$, one-sided test). Action-oriented participants on the other hand, showed significantly less implicit negative affect under mortality salience compared to the control condition ($t(15) = -2.04$, $p < 0.05$, one-sided test). This is discussed later on. The interaction effect remained stable when controlling for self-esteem, $F(1, 46) = 5.07$, $p < 0.05$, $\eta_p^2 = 0.099$.

In a similar ANCOVA on implicit positive affect, there was no Condition \times Personality interaction, $F(1, 50) = 0.06$, $\eta_p^2 = 0.001$, ns . State-oriented participants did not differ in implicit positive affect under mortality salience ($M = 3.42$, $SD = 0.62$) and control conditions ($M = 3.34$, $SD = 0.76$). Action-oriented participants did also not differ in implicit positive affect under mortality salience ($M = 3.35$, $SD = 0.73$) and control conditions ($M = 3.24$, $SD = 0.36$).

Explicit affect

We conducted a multivariate analysis of variance (MANOVA) with condition and personality as independent variables and explicit mood ratings as dependent variables. The results for explicit negative affect revealed no significant main effects of condition, $F(1, 49) = 0.47$, $\eta_p^2 = 0.009$, ns , and action orientation, $F(1, 49) = 0.80$, $\eta_p^2 = 0.016$, ns . Furthermore, there was no significant Condition \times Personality interaction, $F(1, 49) = 0.16$, $\eta_p^2 = 0.003$, ns . Again, state-oriented participants did not differ in explicit negative affect under mortality salience ($M = 1.72$, $SD = 0.72$) and control conditions ($M = 1.63$, $SD = 0.67$). Similarly, action-oriented participants did not differ in explicit negative affect under mortality salience ($M = 1.63$, $SD = 0.81$) and control conditions ($M = 1.41$, $SD = 0.40$).

The results for explicit positive affect revealed no significant main effects of condition, $F(1, 49) = 23$, $\eta_p^2 = 0.005$, ns , and action orientation, $F(1, 49) = 0.84$, $\eta_p^2 = 0.017$, ns . Furthermore, there was no significant interaction effect, $F(1, 49) = 1.01$, $\eta_p^2 = 0.020$, ns . State-oriented participants did not differ in explicit positive affect under mortality salience ($M = 2.09$, $SD = 0.74$) and control conditions ($M = 2.19$, $SD = 0.69$). Similarly, action-oriented participants did not differ in explicit positive affect under mortality salience ($M = 2.50$, $SD = 0.80$) and control conditions ($M = 2.19$, $SD = 0.58$).

DISCUSSION

The present study was conducted to uncover the presumably implicit affective responses to mortality salience and to explore their modulation through affect-regulation skills. Our study yielded the following results. First, we demonstrated that there is indeed an affective response to reminders of death on an implicit level. Whereas cultural worldview defense is conceived as a distal coping strategy and, thus, offers indirect evidence for the presence of negative affect under mortality salience, we were able to grasp this implicit anxiety more directly with an implicit negative affect test.

Second, we showed that this affective reaction is moderated by individual differences in the ability to self-regulate negative affect. Whereas other studies already demonstrated the effects of affect-regulation skills on coping strategies like cultural worldview defense (Gailliot *et al.*, 2006; Kazén *et al.*, 2005; Wojdylo *et al.*, 2014), we showed that the differences in affect-regulation actually influence the affective reaction towards death itself. We found implicit negative affect differ under mortality salience as a function of state versus action orientation. State-oriented participants in our mortality salience condition experienced higher levels of implicit negative affect compared to action-oriented participants. A closer look at the two personality dispositions revealed that state-oriented participants showed only a marginally significant increase in implicit negative affect under mortality salience. Action-oriented participants, in contrast, showed a significant decrease in implicit negative affect under mortality salience as indicated by rating artificial words as expressing less negative affect.

This is in line with previous findings that demonstrate the benefits of action orientation under stress but not under relaxed conditions (Koole, Jostmann & Baumann, 2012). Whereas state-oriented individuals typically suffer from stressful conditions because they are unable to down-regulate negative affect, action-oriented individuals benefit from stressful conditions because they are stimulated to unfold their full self-regulatory potential. However, as Koole *et al.* (2012) have already pointed out, the effects of stressful conditions among state- and action-oriented individuals may not always be perfectly symmetrical in any given study due to methodological differences (e.g., stress intensity, delay between stress induction and dependent measure). Consistently, our mortality salience induction did not elicit perfectly symmetrical effects and significantly affected action- but not state-oriented individuals. We do not know yet whether this slightly asymmetrical pattern is reliable and important for our understanding of the workings of mortality salience.

In sum, we demonstrated that personality differences in the ability to self-regulate negative affect moderate the implicit anxiety aroused by a confrontation with death – a situation typically conceived of as highly threatening (Burris & Rempel, 2004; Pyszczynski *et al.*, 1999; van den Bos, 2009).

Third, in addition to affective responses, we explored the cognitive responses of participants under mortality salience. In the analysis of death-related thoughts, the interaction between condition and personality failed to reach significance and was descriptively in the opposite direction. This shows that self-regulatory skills exclusively impact affective but not cognitive responses towards death. The finding that action orientation was associated with reduced implicit negative affect while leaving death-related thoughts unaffected (or descriptively even increased) further supports the conceptualization of action orientation in terms of a non-repressive, self-confrontational way of coping. Action-oriented participants confronted themselves with the source of anxiety (i.e., death-related thoughts) and efficiently regulated the implicit affective response.

Fourth, we found a significant correlation between explicit negative affect and death-thought accessibility. Whereas other studies either do not report correlations between explicit affect and death-thought accessibility (e.g., Greenberg *et al.*, 2001; Routledge, Arndt, Sedikides & Wildschut, 2008) or reveal nonsignificant correlations (Hayes, Schimel, Arndt & Faucher, 2010; Schimel, Hayes, Williams & Jahrig, 2007), we found explicit negative affect to be associated with significantly higher death-thought accessibility. This correlation occurred independently from personality and condition and may be an artefact of our specific procedure. As we measured death-thought accessibility after the assessment of explicit negative affect, we can rule out the possibility that death-related word-stems elicited explicit negative affect. However, explicit negative affect may have increased the accessibility of negative thoughts in general. In our word-stem test, all negative words were death-related so that we cannot differentiate whether explicit negative affect was associated with higher accessibility of negative or specifically death-related thoughts.

Finally, consistent with previous research (e.g., Solomon *et al.*, 2004), we did not find an effect of mortality salience on explicit mood ratings. One may wonder if this was an unfair test because we assessed explicit negative affect right after the induction and a meta-analysis by Burke *et al.* (2010) shows that reactions to mortality salience occur only after a delay. Because TMT consistently failed to show explicit negative affect under mortality salience across different delay conditions, we do not believe that a delay would have yielded an effect

LIMITATIONS AND FUTURE PERSPECTIVES

Certainly, this study is limited in several ways. First, we tested a restricted sample of high school students with an average age of 16 years. In most studies on terror management, samples typically consist of college students (see Burke *et al.*, 2010). Although they share several aspects with our sample like youth, health, and low experience with death and dying, a replication with an older sample would be useful. In particular, although we found the expected differences between state- and action-oriented participants

under mortality salience and a significant decrease of implicit negative affect for action-oriented individuals, the expected increase of implicit negative affect under mortality was only marginally significant. A replication of our findings with a similar and a dissimilar sample could rule out the possibility that characteristics of our sample evoked this effect.

Second, we assessed implicit affect only with the IPANAT (Quirin *et al.*, 2009) because it is a relatively short, reliable, and valid instrument. Nevertheless, a replication of our results with associative, behavioral, or other projective measures of implicit affect is needed (for an overview of implicit measures see Kaufmann & Baumann, 2015). Third, we did not explore the relationship between implicit negative affect and cultural worldview defense. We would expect higher implicit negative affect to be associated with a higher need for cultural worldview defense. Therefore, in future studies, it would be informative to include measures of worldview defense. In a previous exploration of cultural worldview defense in state- and action-oriented individuals, Wojdylo *et al.* (2014) found action-oriented individuals to show higher emotional autonomy under mortality salience. Whereas state-oriented individuals showed a cultural worldview defense in the way that they aligned punishment ratings of serious social transgressions with traditional cultural attitudes and values, action-oriented individuals expressed higher autonomy by choosing punishments that were less in line with common attitudes in their cultural context under mortality salience. It would be enriching to connect these findings with our findings of implicit negative affect under mortality salience.

Additionally, in line with DeWall and Baumeister (2007), we found no effect of mortality salience on explicit positive or negative affect. However, whereas DeWall and Baumeister revealed a tuning to positive information, measured by the accessibility of positive emotional words in a word-stem completion task, we haven't found an effect of mortality salience on implicit positive affect. This could be due to differences in measuring implicit affect. DeWall and Baumeister offered their participants the possibility to avoid the potentially negative state of mortality salience by thinking about positive emotional words. Accordingly, the authors interpret the increased accessibility of positive information as a coping strategy. In contrast, we asked our participants to judge artificial words by their momentary feelings about these. Instead of turning away from potentially negative affective states, we asked them to use them as information about the artificial words. This could explain why we found an effect of mortality salience on negative implicit affect but not on implicit positive affect, whereas DeWall and Baumeister found an effect of mortality salience on implicit positive affect but not on implicit negative affect. To verify this explanation, a replication with these two different measurements of implicit affect would be needed.

Although differences for state-oriented individuals were only marginally significant and a replication would be needed, an additional question could be whether there are contexts that help state-oriented individuals to regulate the implicit negative affect aroused by reminders of death. Whereas action-oriented individuals are able to regulate affect on their own and even benefit from mortality salience, state-oriented individuals may benefit from external regulation through social support and

relatedness (Chatterjee, Baumann & Osborne, 2013; Koole & Jostmann, 2004). Several studies already demonstrated the anxiety-buffering effect of close relationships (Florian, Mikulincer & Hirschberger, 2002; Hirschberger, Florian & Mikulincer, 2003; Taubman-Ben-Ari, Findler & Mikulincer, 2002). Our present findings suggest that these buffers are especially important for state-oriented individuals and, thus, extend the research on the effects of close relationships for coping with death.

CONCLUSION

Although it is a common assumption that death arouses anxiety, Monty Python encourages people to laugh about death. Terror management theory would assume that this is a rationalization that suppresses death-related anxiety out of consciousness but maintains it on an implicit level. Our results support this assumption – albeit only for state-oriented people because they have low affect-regulation skills. Referring to the quotation of Monty Python, action-oriented people can truly laugh about death because they are able to self-regulate negative affect – even on an implicit level.

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