Results

Startle Potentiation to Anti-US Images as a Function of Mortality Salience

An index of anti-US startle potentiation was created by subtracting the log-transformed and standardized startle magnitudes to unpleasant images from those to anti-US images. Contemplating death potentiated startle to anti-US images relative to control (F(1,64)=25.81, p<0.05).

Method

Participants
- Participants were 66 university students (41 females, 25 males) who, on a mass prestest, circled 9 in response to: “My identification as an American is important to me” (1=Not at all; 7=Very much so).

Procedure
- First, participants were told they were participating in a study on “personality and how brainwaves relate to image viewing."
- Second, electrocardiographic (ECG) activity was recorded during a 5-minute resting period. Heart period variability in the high frequency band (.12–.4 Hz) was later extracted using CMetX software.
- Third, participants completed a packet of filler personality questionnaires, concluding with the MS manipulation.
- Those in the MS condition received two open-ended questions:
  - “Please describe the emotions that the thought of your own death arouses in you.”
  - “Jet down, as specifically as you can, what you think will happen to you as you physically die and once you are physically dead.”

Control participants instead received parallel questions pertaining to an important upcoming exam.
- Fourth, resting ECG was assessed during a second 5-minute resting period immediately following this manipulation.
- Finally, participants were presented with a series of images (6 seconds each), including 12 generally unpleasant IAPS images as well as 12 images of an anti-American nature. The anti-US and unpleasant images were pilot tested to be matched on valence and arousal. Also presented, but not reported here, were 12 neutral images, 12 generally pleasant images, and 12 pro-American images.

Results

The condition (death vs. control) by time (pre-manipulation vs. post-manipulation) interaction (F(1,64)=20.64, p<.05) revealed that although RSA did not differ between MS and control participants pre-maniuplation, following the MS manipulation, RSA decreased in subjects who contemplated death and also that RSA post-manipulation was lower compared to those of the controls. Note: * denotes comparisons significantly different (p<0.05).

To examine whether MS-induced changes in RSA could predict startle potentiation, post-manipulation RSA values were redialized on pre-manipulation RSA values; the residuals resulting in RSA from that which would have been predicted by baseline RSA. Consistent with the interaction depicted at the left, contemplating death resulted in lower redialized RSA scores than the control condition (F(1,64)=27.96, p<.05). These redialized RSA values were then examined within group as predictors of startle potentiation to anti-US images. This relationship was not significant among control participants (r = .21, ns), but among those in MS condition, a trend was observed (r = .34, p<.05).

Discussion

These findings suggest a mechanism by which reminders of one’s mortality may lead to increased worldview defense. Reminders of mortality decreased respiratory sinus arrhythmia and heightened startle potentiation to worldview-threatening imagery. Moreover, the extent of MS-induced lowering of RSA predicted startle potentiation to worldview-threatening imagery. By inference, reminders of mortality decrease regulatory capacity (indexed by RSA), which may thus lead to heightened defensive responding as a way to restore a sense of meaning and purpose. Additional research should focus on other intermediate mediating variables, and moderators of this influence, to further elucidate the mechanisms underlying the well-documented effect of reminders to provoke worldview defense.

References

Aspers, M., & Greenberg, J. M. (2014). Mortality salience decreases RSA in a startle paradigm wherein eyeblink startle magnitudes were assessed during the presentation of worldview-threatening imagery, as well as generally unpleasant imagery. If affective priming of the startle reflex is based on motivational variables (e.g., Lang, 1995) and MS decreased motivation for CWV defense (e.g., Greenberg et al., 2005), then MS should intensify startle potentiation to worldview-threatening images. Accordingly, we hypothesized that MS would cause Vagal withdrawal, as indicated by a decrease in RSA.

Finally, we sought to identify whether MS-induced changes in RSA would relate to MS-induced startle potentiation. Consistent with research linking RSA to heightened affective modulation of startle (e.g., Ruiz-Padilla, Solters, & Thayer, 2005), we hypothesized that decreases in RSA due to MS would relate to increases in MS-induced startle potentiation to worldview-threatening images. Such a prediction links the physiological impact of MS itself with a physiological index of CWV defense.

All results available: www.psychology.org