

BRIEF REPORT

Interpretation of death-relevant ambiguous stimuli as a function of death threat

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According to G.A. Kelly's (1955) Personal Construct Theory, people are threatened by personal death to the extent that their conceptions of death are inconsistent with their conceptions of their present selves. As an individual difference factor, death threat predicts how people respond to death-relevant situations and stimuli. To test the hypothesis that high death-threat (relative to low death-threat) persons will engage in greater denial when assigning meaning to ambiguous stimuli, college students viewed inkblots and chose between a nondeath-relevant interpretation and a death-relevant interpretation. As hypothesised, high death-threat participants endorsed fewer death-relevant interpretations than did low death-threat participants. Self-reported conscious fear of death did not predict this avoidance. Results are discussed in the light of historical and current work on psychological responses to death.

Once constrained by societal taboo, *thanatology*—the study of death, and in particular the study of emotional and psychological responses to the consideration of one's death—has burgeoned (Neimeyer, 1997). Several research journals are devoted to this field (Feifel, 1990; Neimeyer, 1988) and individual differences in death orientation are discussed in many psychological journals (e.g., Feifel & Nagy, 1980; Florian & Kravetz, 1983; Thorson & Powell, 1988, 1990). Kelly's (1955) Personal Construct Theory is one of a few theories that has informed thanatology and guided research (Neimeyer, 1994, 1997). A discussion of this theory follows, with its derivation of the individual difference construct of "death threat". Denial is then considered as it relates to death threat.

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Personal Construct Theory and death threat

According to Kelly's (1955) Personal Construct Theory, people are motivated to make sense of events and situations so that they can anticipate their future occurrences. Accordingly, people construct meanings for their past, present, and future experiences, and those meanings are represented along the endpoints of bipolar dimensions (e.g., static-changing; sad-happy). Among the most superordinate constructs in a person's hierarchically organised construct system are "core" constructs that enable a person to maintain his/her identity and sense of continuing existence (i.e., construct for present self). To the extent that a person's core constructs are challenged—that is, to the extent that these constructs do not adequately describe some facet of reality—the person is said to experience threat. Kelly (1955, p. 489) defines threat as "the awareness of imminent comprehensive change in one's core structures". Death represents the paradigmatic threat to one's personal construct system. Death threat results when death is construed along the meaning dimensions of a person's construct system in opposition to his/her construal of present self. For those who construe their deaths as similar to their present selves, death is easier to anticipate and thus poses less of a threat.

Elaborating on this notion of death threat, Krieger, Epting, and Leitner (1974) developed the original interview format of the Threat Index (TI). Subsequently, a self-administered TI was developed in which participants indicate on each of several meaning dimensions where they place both themselves, and their own personal death "as if it were to occur at this time in your life" (Krieger, Epting, & Hayes, 1979). The TI is scored by summing the number of instances (i.e., "splits") in which self and death are placed at opposite ends of the dimensions. As assessed by the number of splits, death is considered threatening to the extent that the personal construct system must be reorganised to construe death as a personal eventuality. The interpretation of a split as threatening was validated by observing that individuals consistently place "comfortable" on the same pole as self, with "terrifying" placed on the opposing pole.

Death threat and the denial of death

Our society is one that is death-denying (Becker, 1973). Originally described as an ego-defence mechanism in Freud's (1915/1959) theory of psychoanalysis, denial is an unconscious process of distorting or avoiding threatening thoughts, feelings, or perceptions. It can bias perceptual processes such that a threatened person does not attend to the threat-provoking aspects of a situation or interprets that situation as less threatening (Corsini, 1984). Experimental research guided by Terror Management Theory (TMT) provides comprehensive evidence of how individuals defensively deny and avoid reminders of their own mortality (e.g., Greenberg, Pyszczynski, & Solomon, 1986; Greenberg, Solomon, & Pyszczynski, 1997; Pyszczynski, Greenberg, & Solomon, 1999, 2000). When death-related thoughts are in focal attention, people's proximal defences are to either work at suppressing those thoughts out of consciousness, or to exaggerate their current health so that the threat of death is pushed further away, into the distant future (Pyszczynski et al., 2000). Another manner in which these proximal defences could operate in death-threatened individuals could be by suppressing or denying death-relevant interpretations for ambiguous stimuli. Given the individual difference measure of death threat (Krieger et al., 1979), we hypothesise that when presented with ambiguous stimuli to interpret in projective tasks, high death-threat individuals will deny death-relevant interpretations more than will low death-threat individuals.

Prior research suggests that individuals who are higher in death threat are less likely to notice death-relevant stimuli. Epting, Rainey, and Weiss (1979) measured performance on a colour-word interference Stroop task. Participants were presented with both death-relevant and nondeath-relevant words in different colours. They were instructed to read these words, calling out only the colour of each word (the less dominant and less likely response), while not reporting the actual word (the more dominant and more likely response). Relative to low death-threat participants, high death-threat participants performed well with death-relevant words on the colour-naming task in that they reacted faster to these words than to nondeath-relevant words, and made fewer errors. This superior performance by high death-threat participants on death-relevant words presumably was a function of a denial process operating for these participants; better able to ignore death-relevant words and thus less likely to be distracted by them, they were better able to perform the usually more difficult colour-identification task.

Another study with paediatric physicians suggests greater use of denial in high death-threat individuals (Neimeyer, Behnke, & Reiss, 1984). These residents were asked to indicate how they would respond to a hypothetical medical emergency in which a patient dies. Relative to low death-threat physicians, high death-threat physicians reported that they would be more likely to try to shake it off, become more involved in their work, be less likely to seek professional help to cope with the death, and be less likely to attend the funeral. The authors concluded that high death-threat orientations were related to denial and avoidance strategies.

In sum, there is support for denial processes in responding to death-relevant stimuli for persons high in death threat. Yet, the unexpected finding from the Stroop test only *indirectly* implies that death-relevant stimuli are not attended to as well by higher death-threat individuals (Epting et al., 1979). Further, when higher death-threat resident physicians indicated their greater likelihood to avoid death-relevant situations, this finding was based on participants considering only hypothetical situations (Neimeyer et al., 1984). A more direct test of the hypothesis that death threat is related to actively denying death-relevance is needed.

The current study

We directly tested whether high death-threat (relative to low death-threat) participants would avoid death-relevant interpretations for ambiguous stimuli by presenting participants with a set of ambiguous inkblots and asking them to indicate which of the two available responses was the better interpretation. These inkblots included a death-relevant interpretation (e.g., “Ashes and skeleton of man burned to death”) and a nondeath-relevant interpretation (e.g., “Smearred piece of carbon paper”). We hypothesised that high death-threat (relative to low death-threat) participants would be more likely to endorse the nondeath-relevant interpretations.

METHOD

Participants

Participants were 234 undergraduates (79 male, 154 female) at a large state university in the United States, fulfilling a requirement for their introductory psychology course.

Materials

A booklet distributed to participants included ambiguous inkblots sampled from cards developed by Rorschach (Exner, 1986) and Holtzman (Holtzman, Thorpe, Swartz, & Herron, 1961). Associated with each blot were two potential interpretations. Based on normative data provided by Exner (1986) and Holtzman et al. (1961), each of the provided interpretations was psychometrically normal. Each of seven cards included one death-relevant and one nondeath-relevant interpretation. We sought to verify that participants would endorse the two chosen normal interpretations of each card with equal frequency. We also wanted to ensure that participants considered each of the two available interpretations to be comparably “good” descriptions. To these two ends, we presented 54 participants (introductory psychology students who received credit toward a research participation requirement) with an assortment of Rorschach and Holtzman inkblots. We identified seven blots offering approximately equally endorsed (no greater than a 60/40 split) and comparatively “good” interpretations, as gauged by a 9-point Likert scale. To validate the authors’ perceptions of stimuli as death-relevant, another 110 participants (also introductory psychology students who received credit toward a research participation requirement) rated on a 9-point scale the death-relevance of the selected death-relevant interpretations as significantly more death-relevant ($M = 7.9$) than the nondeath-relevant interpretations ($M = 2.1$), $t(109) > 2.0$, $p < .05$.

Death threat. Following completion of the inkblot booklet, participants completed the self-administered Threat Index (TI; Krieger et al., 1979). Participants indicated on each of 40 bipolar meaning dimensions the pole on which he/she construes him/herself (e.g., static-changing, sad-happy). On a separate form, the participant placed personal death “as if it were to occur at this time in your life” on each of the same dimensions. The TI is scored by summing the number of instances (i.e., “splits”) in which “yourself” and “death” are placed at opposite ends of a dimension. Previous work demonstrates the TI’s convergent and discriminant validity, as well as its internal and test-retest reliability (see Neimeyer, 1994; Neimeyer & Fortner, 1997; Neimeyer & Moore, 1989). Scores on the TI are independent of social desirability biases that contaminate other established measures (Neimeyer, 1994, 1997; Neimeyer & Moore, 1989).

Conscious fear of death. To control for effects attributable to assessments of conscious “fear of death” (Durlak & Kass, 1981; Neimeyer, 1994), participants responded to the following statement: “Please indicate, on the following scale, the extent to which you are afraid of your own death”. The scale was anchored from 1 = “not at all afraid” to 9 = “extremely afraid”.

Procedure

Participants signed up for an experiment entitled “Pictures,” with about 20 participants in each session. There were four versions of the booklet—two orders in which the inkblots were presented (picture order), crossed by two orders in which the interpretations were given for each blot (choice order).

RESULTS

Following Neimeyer et al. (1984), participants were divided into high death-threat and low death-threat groups after rank-ordering their TI scores, excluding the 18 participants at the median. The upper and lower halves of the distribution were then designated as high death-threat ($n = 112$, M splits = 20.5) and low death-threat ($n = 104$, M splits = 7.3), respectively.

An initial full-design analysis revealed no main effects for picture order, choice order, or the higher order interaction involving these two factors (all $ps > .10$). Thus, these two factors were dropped from the design. To test our hypothesis, we conducted a between-subjects (death threat level: high, low) ANCOVA on the mean number of nondeath-relevant interpretations endorsed. Because the TI is positively correlated with assessments of conscious fear of death (Neimeyer, 1994), we entered conscious fear of death as a covariate to isolate an effect attributable to death threat. Conscious fear of death scores were positively correlated with death threat scores ($r = .27$, $p < .001$, $n = 210$), but conscious fear of death scores did not predict the selection of interpretations ($F < 1$, $p > .05$).

Confirming the main hypothesis, a main effect for death threat level indicated that high death-threat and low death-threat participants differed in the mean frequency with which they selected the nondeath-relevant interpretation, $F(1, 197) = 3.79$, $p = .05$. High death-threat participants selected the nondeath-relevant interpretation more frequently ($M = 3.5$) than did the low death-threat participants ($M = 3.1$), even after controlling for conscious fear of death.

In addition to treating death threat as a dichotomous variable (Neimeyer et al., 1984), we conducted a regression analysis, allowing for death threat to be treated as a continuous variable and for the inclusion of all participants' data. We obtained the same results. Ordinary least squares hierarchical regression analyses were employed to predict the frequency of choosing nondeath-relevant interpretations. Within the regression model, the earlier steps controlled for design characteristics (e.g., picture order and choice order; Model 1), gender of participant (Model 2), and self-reported conscious fear of death (Model 3). Model 4 assessed the influence of participants' continuous TI scores after controlling for each of these factors. The statistical significance of the increase in explained variance resulting from adding each block of factors to each step was considered in order to compare the models. None of the earlier models controlling for the design factors, gender, or conscious fear of death significantly predicted the frequency of choosing nondeath-relevant interpretations (all F -change statistics < 1). The addition of death threat scores in Model 4 significantly increased the prediction of the frequency of choosing nondeath-relevant interpretations, increasing R^2 to .02, $\beta = .15$, $F(1, 211) = 4.25$, $p < .05$. As predicted, those with higher death threat scores chose more nondeath-relevant interpretations.

DISCUSSION

Previous research indirectly supports the hypothesis that high death-threat participants use the defence mechanism of denial as a means of avoiding threatening death-relevant stimuli more than do low death-threat participants (Epting et al., 1979; Neimeyer et al., 1984). The current findings offer direct support for this hypothesis with a projective

interpretation task. When faced with ambiguous stimuli that can be interpreted as death-relevant or nondeath-relevant, high death-threat participants avoid the available death-relevant interpretations significantly more often than do low death-threat individuals. Such avoidance can be a means of coping with the threat of death (Epting et al., 1979; Neimeyer et al., 1984). High death-threat individuals may distance themselves more from death by not seeing death as often in ambiguous stimuli than those less threatened by death. This finding extends the concept of proximal defences in reaction to reminders of death identified in TMT (Pyszczynski et al., 2000) to include the suppression of death-relevant interpretations on projective tests. It also identifies death threat as an individual difference measure that may account for variability in the use of proximal defences in reaction to death-relevant materials, more generally.

The obtained avoidance effect for higher death-threat individuals is independent of conscious fear of death. A conscious fear of death did not predict avoiding death-relevant interpretations, but how individuals perceived themselves in relation to death did. What does this pattern of findings imply concerning the underlying psychological process? First, the fact that an *indirect* measure of one's death attitude (i.e., the TI) predicts avoiding death-relevant interpretations on a projective task, although a *direct* measure does not, is consistent with research on implicit versus explicit attitudes (Greenwald & Banaji, 1995). The TI is an indirect measure of one's implicit attitude towards death and assesses a disposition to view death as threatening based on how similarly one construes one's own death and self (Neimeyer, 1997). The direct fear of death measure, in contrast, is explicit and captures how consciously aware individuals are of the threat posed. If the denial of death operates at an implicit, subconscious level in leading to distortions and avoidance of threatening stimuli (Becker, 1973), then an implicit measure of one's negative attitude towards death will more likely tap the responsible subconscious attitude than will an explicit measure. In this vein, Neimeyer (1997) calls for well-validated implicit cognitive tasks to better measure the subconscious nature of death attitudes. Consistent with our methodology, inkblot projective tasks also are recommended as indirect measures to tap implicit attitudes (Greenwald & Banaji, 1995).

Second, TMT research indicates that it is not a conscious emotional experience of fear that elicits terror management, but the accessibility of death-related thoughts; increasing mortality salience does not typically increase negative affect (Pyszczynski et al., 2000). When faced with death-relevant interpretations for stimuli, our high death-threat participants likely managed their terror of death calmly without having to experience that terror emotionally.

Although more recent theories may explain some of our findings, reconsider the contribution of Kelly's (1955) Personal Construct Theory. This idiographic theory proposed a method for measuring individual differences in death threat, operationalising death threat as the extent to which individuals are able to integrate their conceptualisations of their eventual deaths with their current views of themselves. An inability to conceptualise one's death as similar to one's present self signals that an individual cannot "come to terms" with or anticipate death. Others following this theory have employed similar idiographic approaches for measuring how much individuals distance their concepts of self from their concepts of their eventual deaths, although the content and method in measuring this psychological distance has varied (Neimeyer, 1994, 1997). Nonetheless, these varied death-threat measures have good predictive utility, suggesting that the exact content of the measure matters less than the concept of psychologically distancing oneself

from death. Although there may be more straightforward or explicit measures of this tendency to distance oneself from death, our simpler and more direct explicit fear of death measure failed to predict an avoidance to death-relevant interpretations on a projective task, suggesting that indirect measures are needed to tap defensive processes operating at an implicit level. Finally, a strength of Kelly's (1955) approach is that it is idiographic, and thus allows for individual variation in the personal meanings assigned to death, yet it still yields a single score for comparing individuals across death threat to determine whether death threat covaries with other measures (Neimeyer, 1994, 1997). Indeed, despite the variation in what death potentially meant to our participants, we were able to predict their performance on a projective task from their death-threat scores.

The present findings suggest that for individuals who are seeking a solution for coping with the reality of their own eventual deaths, Kellian personal construct psychotherapy could be useful (Kelly, 1955). Coming to terms with the personal meanings of death is the key to this therapy, which helps people reorganise their personal construct system to incorporate the reality of eventual death within their present lives so that they can be less threatened by death (Neimeyer, 1997; Viney, 1991). Death threat also predicts counsellors' ability to respond empathically to grieving clients (Kirchberg, Neimeyer, & James, 1998), and the present findings therefore have implications for grief counsellors.

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