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ASSESSING INDIVIDUAL DIFFERENCES IN DEATH THREAT: A BRIEF THEORETICAL AND PSYCHOMETRIC REVIEW OF THE THREAT INDEX

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ABSTRACT

According to G. A. Kelly's (1955) Personal Construct Theory, people construe the elements of reality along bipolar meaning dimensions (e.g., sad–happy) to make reality more predictable. People are threatened by personal death when their conception of death along these dimensions is inconsistent with their conception of their self. S. R. Krieger, F. R. Epting, and L. M. Leitner (1974) developed the "Threat Index" (TI) to assess "death threat." To complete the TI, a person indicates on several bipolar meaning dimensions on which pole he or she construes "yourself." The person indicates on a separate form their views about personal death, "as if it were to occur at this time in your life," on the same dimensions. The TI is scored by summing the number of "splits" in which "self" and "death" are placed at opposite ends of a dimension. Death threat is greater with more splits, because the number of these splits indicates the extent to which the construct system must be reorganized to construe death as a personal eventuality. I review evidence that the TI is a reliable and valid measure of death orientation and is uniquely suited to assess Kellian death threat. To showcase the heuristic value of Kelly's theory and the utility of the TI as an assessment of death threat, I review research testing and supporting the hypothesis that people who score high (relative to those who score low) in death threat display a denial orientation toward death-relevant stimuli.

According to Kelly's (1955) Personal Construct Theory, in an effort to establish predictability in reality, people engage in cognitive construction whereby bipolar

meaning dimensions (e.g., sad–happy, old–new) are used to organize subjective experience. Organized hierarchically into superordinate constructs and subordinate constructs, a person's construct system is directed by what Kelly (1955) termed "core constructs." Core constructs "govern a person's maintenance processes; they enable him to maintain his identity and sense of continuing existence . . . they cannot be changed in any way without disturbing the very roots of a person's existence" (Bannister & Mair, 1968, p. 30). "Death–self" is an example of a core construct (Kelly, 1955).

To the extent that the person's basic constructions of reality are challenged—that is, to the extent that the core constructs do not describe reality—the person is said to experience threat. According to Personal Construct Theory (Kelly, 1955, p. 489), threat is "the awareness of imminent comprehensive change in one's core structures." Because a person's construct system depends on the accurate organization of core constructs, if these core constructs are discrepant with reality, the entire construct system will be disrupted.

Kelly (1955) argued that death is the paradigmatic threat to the construct system. "Death threat" is the negative psychological and emotional responses that accompany the recognition of eventual personal death, when personal death cannot be constructed in a way that is consistent with the remainder of the construct system and with objective reality. To the extent that death is construed along the bipolar meaning dimensions of a person's construct system in opposition to the person's self, death threat will result.

Krieger, Epting, and Leitner (1974) developed the "Threat Index" (TI) to assess Kellian death threat. Specifically, the TI is intended to assess the extent to which a person's construct system is organized to anticipate death as a personal surety (Krieger, Epting, & Hayes, 1979; Rigdon, Epting, Neimeyer, & Krieger, 1979). In completing the "provided construct" form of the TI (Krieger et al., 1979—see Appendix), the person indicates on each of several bipolar meaning dimensions on which pole he or she construes "yourself." The person indicates on a separate form placement of personal death, "as if it were to occur at this time in your life," on the same dimensions. The TI is scored by summing the number of "splits" in which "self" and "death" are placed at opposite ends of a bipolar dimension. Death is considered threatening in proportion to the extent to which the personal construct system must be reorganized to construe death as a realistic personal eventuality.

In the following sections of this article, I review evidence for the reliability and validity of the TI. All statistics reported are significant at an alpha level of .05, unless otherwise noted. I first address the reliability of the TI, and then the validity of the TI. I next present the results of empirical work testing and supporting the hypothesis that people who score high (relative to those who score low) in death threat, as assessed by the TI, display a denial orientation toward death-relevant stimuli. This research highlights the heuristic value of Kelly's theory and the utility of the TI as an assessment of death threat.

RELIABILITY OF THE TI

Test-Retest Reliability

Several studies using young adult samples have evaluated the temporal consistency of TI scores. Neimeyer et al. (1977) found a reliability coefficient of .86 over a 45-minute interval. Krieger et al. (1979) and Moore and Neimeyer (1991) found coefficients of .90 and 64, respectively, for four-week intervals. Rigdon and Epting (1985) found a coefficient of .73 for a seven-week interval. And Rainey and Epting (1977) found a coefficient of .87 for a nine-week interval. These results support the stability of the TI and suggest that "the [TI] reflects a relatively enduring death orientation" (Rigdon et al., 1979, p. 251).

Internal Consistency

Split-half coefficients have been computed for the TI by splitting the constructs into odd-numbered and even-numbered constructs. The resulting coefficients provide evidence of internal consistency for the TI: Krieger et al. (1979) report a coefficient of .96, MacInnes and Neimeyer (1980) report a coefficient of .92, and Rigdon and Epting (1985) report a coefficient of .90. Further corroborating the internal consistency of the TI, Moore and Neimeyer (1991) report a Cronbach's alpha coefficient of .88.

VALIDITY OF THE TI

Construct Validity

There is no absolute criterion of death threat against which TI scores can be compared. In order to interpret TI scores as a measure of death threat, "we would expect at a minimum that there would be a significant and consistent relationship between TI scores with other established measures of death orientation and with self-reported behaviors and attitudes regarding death" (Rigdon et al., 1979, p. 255). What follows is a review of the convergent and discriminant validity of the TI.

Relationship between the TI and Other Death Orientation Instruments (Convergent Validity) as a Means of Establishing Construct Validity

Several studies have assessed the relationship between the TI and other measures of death orientation. Durlak and Kass (1981) report a significantly larger correlation between scores on the TI and Lester's Fear of Death Scale (FDS; Lester, 1967) than between scores on the TI and Templer's Death Anxiety Scale (DAS; Templer, 1970)—*r*'s = .44 and .23, respectively. This correlational

difference is consistent with Krieger et al.'s (1974) hypothesis that the DAS is a measure of affective arousal and anxiety about death, whereas the TI and the FDS assess a person's understanding of death in relation to other aspects of his or her life. This hypothesis was corroborated by the findings of Neimeyer, Dingemans, and Epting (1977), in which situational anxiety scores and DAS scores increased significantly after subjects viewed a 30-minute film depicting war atrocities, whereas TI scores remained stable ($r = .80$). As Rigdon et al. (1979) note, ". . . the TI may be viewed as a measure of more stable cognitive orientation regarding death than is the DAS" (p. 255).

Nonetheless, a relationship between TI scores and situational anxiety does exist. Reviewing the results of Neimeyer et al. (1977), Neimeyer (1978) argued that participants with high TI scores had a predisposition to experience more anxiety, relative to participants with low TI scores, when viewing the war atrocities film. In a follow-up study using a war atrocities film, Neimeyer (1978) found that pre-film TI-scorers had significantly higher situational anxiety scores after viewing the film than did pre-film low TI-scorers.

Scores on the TI are moderately correlated with the FDS Total score ($r = .40$, Neimeyer & Dingemans, 1980; $r = .22$, Robinson & Wood, 1984; $r = .23$, Neimeyer, 1985). Using stepwise multiple regression analysis, Epting, Rainey, and Weiss (1979) reported substantial convergence ($R = .64$) between scores on the TI and Feifel's conscious, fantasy, and nonconscious measures of fear of death (Feifel, 1969; Feifel & Branscomb, 1973; Feifel, Freilich, & Hermann, 1973; Feifel & Hermann, 1973). In a study of young adults, Tobacyk and Eckstein (1980-81) found a correlation ($r = .30$) between scores on the TI and scores on the Death Concern Scale (Dickstein, 1972)—a measure assessing the extent to which one consciously confronts death and is disturbed by its implications.

The TI, the FDS, the DAS, Feifel's battery of measures, and the Death Concern Scale were developed to assess related, but not identical, constructs (death threat, fear of death, death anxiety, and death concern). "The moderate correlations support the validity of interpreting the TI as a measure of death orientation, although it apparently assesses a different aspect of death concern than do the other scales" (Rigdon et al., 1979, p. 258). Further corroborating the validity of the TI, correlations of .48, .30, and .31 were reported by Krieger et al. (1979), Epting et al. (1979), and Shackelford and Agostinelli (in press), respectively, between the TI and self-reported fear of death.

Discriminant Validity

In a study of college students, Krieger et al. (1979) found a nonsignificant relationship ($r = –.08$) between scores on the TI and social desirability, as measured by the Marlowe-Crowne scale. In a community sample of adults, Dattel and Neimeyer (1990) also found a nonsignificant relationship ($r = –.07$) between scores on the TI and scores on the Marlowe-Crowne scale. In a study of college

students, Moore and Neimeyer (1991) reported a nonsignificant relationship ($r = -.01$) between scores on the TI and another measure of social desirability, the Lie Scale of the Minnesota Multiphasic Personality Inventory. In a study of people ranging in age from 19 to 79 years, Rainey and Epting (1977) found a nonsignificant relationship ($r = -.03$) between scores on the TI and age. The TI, therefore, is not simply an assessment of, nor is it directly confounded with, social desirability concerns or age.

In sum, the Threat Index has demonstrated good reliability and validity as an assessment of death orientation in general, and of death threat in particular. In the next section, I review research that highlights the heuristic value of Kelly's (1955) Personal Construct Theory and the utility of the TI as an assessment of death threat.

DEATH THREAT AND THE DENIAL OF DEATH

Freud (1915/1959), Kübler-Ross (1969), and Becker (1973) have described Western society as death-denying. Originally described as a defense mechanism in Freud's theory of psychoanalysis, theorists from many perspectives have addressed denial in their own conceptual language, but most suggest a similar psychological mechanism. "In denial, a person does not attend to the *threat-provoking* aspects of a situation and changes the interpretation of the situation so as to perceive it as *less threatening*" (Corsini, 1984, p. 348, emphasis added). Denial is an unconscious process of distorting or avoiding threatening thoughts, feelings, or perceptions. According to the Kellian notion of threat, in an effort to cope with death threat, a person high in death threat might engage in denial of death-relevant stimuli (Epting et al., 1979). Several studies have investigated this proposal.

Epting et al. (1979) measured performance on a color-word interference Stroop task. Participants were presented with death-relevant and non-death-relevant words in one of four colors. Participants were instructed to read these words, calling out only the color of each word (a less dominant, and thus less likely, response), while not reporting the actual word (the more dominant, and thus more likely, response). Participants were scored for death threat using the TI. Relative to low-death-threat participants, high-death-threat participants reacted faster to death-relevant words than to non-death-relevant words, and made fewer errors for death-relevant words than for non-death-relevant words. This superior performance by high-death-threat participants on death-relevant words presumably was a function of the denial process engaged by these participants. By refusing to perceive the death-relevant words, high-death-threat participants could call out the usually more difficult color-identification response with greater speed and accuracy (relative to low-death-threat participants). Unable to reconcile the notion of personal death with their established construct system, high-death-threat participants used a coping strategy akin to the psychological process of denial.

A study on the coping mechanisms used by pediatric residents lends additional support to the hypothesis that death threat motivates the denial or avoidance of death-relevant thoughts and activities (Neimeyer, Behnke, & Reiss, 1984). These residents were asked to indicate the likelihood of responding both behaviorally and psychophysiologically to a hypothetical medical emergency in which one of their patients dies. Death threat was assessed with the TI. 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, less likely to seek professional help in coping with the death, and less likely to attend the funeral. Neimeyer et al. (1984) concluded that high-death-threat orientations were related to denial and avoidance strategies. In sum, the results of Epting et al. (1979) and Neimeyer et al. (1984) support the proposal that persons high in death threat tend to employ denial orientations in response to death-relevant stimuli.

Shackelford and Agostinelli (in press) presented high-death-threat and low-death-threat participants with a set of ambiguous inkblots and asked 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 non-death-relevant interpretation (e.g., "Smeared piece of carbon paper"). Using the TI to assess death threat, Shackelford and Agostinelli (in press) tested and found support for the hypothesis that high-death-threat (relative to low-death-threat) participants are less likely to endorse the death-relevant interpretation. This research provided a more direct test than previous research of the hypothesis that people high in death threat (relative to people low in death threat) use denial to actively avoid perceiving death-relevance in the world around them.

The research conducted by Epting et al. (1979), Neimeyer et al. (1984), and Shackelford and Agostinelli (in press) highlights the heuristic value of Kelly's (1955) Personal Construct Theory and the utility of the TI as an assessment of death threat. The results of these studies provide convergent evidence that people who score high (relative to those who score low) in death threat—as assessed by the TI—may avoid or deny death-relevant material and stimuli when this is possible.

CONCLUSIONS

The Threat Index has been shown to have good reliability and validity as an assessment of death threat. Several measures of fear of death, death anxiety, and death concern exist and have been shown to have good reliability and validity (see Kastenbaum & Costa, 1977; Neimeyer, 1994). The TI, however, is the only reliable and valid tool for securing an assessment of threat upon consideration of personal death, or "death threat." In addition, the TI is one of a few theoretically informed assessment tools, specifically designed to measure death orientation as conceptualized by Kelly's (1955) Personal Construct Theory. In addition to uniquely and with good reliability and validity assessing a theoretically informed

conceptualization of death orientation, the TI is easy to administer, score, and interpret. To showcase the heuristic value of Kelly's (1955) theory and the utility of the TI as a tool for assessing death threat, I reviewed empirical work suggesting that people who score high in death threat avoid or deny death-relevant material and stimuli.

After an exhaustive review of the literature on death orientation, Kastenbaum and Costa (1977; and see Neimeyer, 1994) concluded that the Threat Index, "might be taken as a model in the field of death concern [assessment]" (p. 236). A quarter century later, this conclusion is defensible. Researchers interested in investigating individual differences in death orientation are encouraged to use the TI. The TI is uniquely suited to secure assessments of death threat as conceptualized by Kelly's (1955) Personal Construct Theory.

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APPENDIX

Self Element. Below is a list of dimensions, each of which is made up of a pair of opposites. For each dimension, please circle the side with which you see yourself or your present life more closely associated. In some cases, you may feel as if both sides describe you to some degree, but please circle only one side of each dimension: the one that describes you better. For example, do you see yourself as more predictable or random?

predictable . . . . . random
empty. . . . . meaningful
lack of control . . . . . control
satisfied . . . . . dissatisfied
relating to others . . . . . not relating to others
pleasure . . . . . pain
feels bad . . . . . feels good
objective . . . . . subjective
alive . . . . . dead
helping others . . . . . being selfish
specific . . . . . general
kind. . . . . cruel
incompetent . . . . . competent
insecure . . . . . secure
static . . . . . changing

unnatural . . . . . natural
sad . . . . . happy
personal . . . . . impersonal
purposeful . . . . . not purposeful
responsible . . . . . not responsible
bad . . . . . good
not caring . . . . . caring
crazy . . . . . healthy
conforming . . . . . not conforming
animate . . . . . inanimate
weak . . . . . strong
useful . . . . . useless
closed . . . . . open
peaceful . . . . . violent
freedom . . . . . restriction
nonexistence . . . . . existence
understanding . . . . . not understanding
calm . . . . . anxious
easy . . . . . hard
productive . . . . . unproductive
learning . . . . . not learning
sick . . . . . healthy
stagnation . . . . . growth
abstract . . . . . concrete
hope . . . . . no hope

Death Element. For each of the dimensions below, please circle the side with which you more closely associate your own death, thinking of your own death as if it were to occur at this time in your life.

predictable . . . . . random
empty . . . . . meaningful
lack of control . . . . . control
satisfied . . . . . dissatisfied
relating to others . . . . . not relating to others
pleasure . . . . . pain
feels bad . . . . . feels good
objective . . . . . subjective
alive . . . . . dead
helping others . . . . . being selfish
specific . . . . . general
kind . . . . . cruel
incompetent . . . . . competent

insecure . . . . . secure
static . . . . . changing
unnatural . . . . . natural
sad . . . . . happy
personal . . . . . impersonal
purposeful . . . . . not purposeful
responsible . . . . . not responsible
bad . . . . . good
not caring . . . . . caring
crazy . . . . . healthy
conforming . . . . . not conforming
animate . . . . . inanimate
weak . . . . . strong
useful . . . . . useless
closed . . . . . open
peaceful . . . . . violent
freedom . . . . . restriction
nonexistence . . . . . existence
understanding . . . . . not understanding
calm . . . . . anxious
easy . . . . . hard
productive . . . . . unproductive
learning . . . . . not learning
sick . . . . . healthy
stagnation . . . . . growth
abstract . . . . . concrete
hope . . . . . no hope

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