REDUCED DEATH THREAT IN NEAR-DEATH EXPERIENCERS

BRUCE GREYSON

University of Connecticut School of Medicine

Near-death experiences (NDE5), profound mystical or transcendental experiences occurring on the threshold of death, have been reported to reduce fear of death and death anxiety. This study compared responses to the Threat Index, a widely used measure of the threat implied by one's personal death, of (a) 135 near-death experiencers, (b) 43 individuals who had come close to death but not had an NDE, and (c) 112 individuals who had never come close to death. Death threat was significantly lower among those with near-death experiences than among the two comparison groups, and degree of death threat was inversely correlated with depth of NDE as measured by the quantitative NDE Scale. Selfideal self discrepancy or, inversely, actualization, was not related to occurrence or depth of NDEs.

Near-death experiences (NDEs) are profound subjective events with transcendental or mystical elements that are reported by about one third of people who have been close to death (Gallup & Proctor, 1982; Greyson & Stevenson, 1980; Sabom & Kreutziger, 1977). These experiences typically include enhanced cognitive functioning, including a life review; strong positive affect, often associated with an encounter with ineffable light; apparent paranormal elements, including an out-of-body experience; and a sense of being in an unearthly realm or dimension of being (Greyson, 1983b). Though their etiology has yet to be established conclusively, NDEs have been shown to precipitate a wide variety of pervasive and

Address correspondence to Bruce Greyson, M.D., Department of Psychiatry, University of Connecticut Health Center, Farmington, CT 06030.

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long-lasting personality transformations (Flynn, 1982; Greyson, 1983a; Noyes, 1980; Ring, 1984).

The attitude changes most consistently reported following NDEs have been dramatic reductions in death anxiety and fear of death. In coining the term "near-death experience," Moody (1975) wrote that almost every "near-death experiencer" (NDEr) had expressed in some form or another the thought of being no longer afraid of death. Moody attributed this nearly universal decrease in fear of death to NDErs' disavowal of the concept of death as annihilation, in favor of a model of death as transition to another state of being.

Noyes (1980) regarded reduced fear of death as the most striking effect of NDEs, and wrote that it seemed to contribute to the NDErs' subsequent health and well-being. He reported that 41% of survivors of life-threatening accidents or illnesses claimed that their fear of death had been reduced, and that resignation in the face of death often brought a sense of peace and tranquility. Noyes's subjects described this resignation as the most remarkable aspect of their experience and linked it to their subsequent reduction in fear of death. Many of his interviewees claimed a greater awareness of death, and felt their NDEs not only brought death closer but integrated it more fully into their lives, the increased awareness of death adding zest to life.

Ring (1980) reported that of 49 NDErs he interviewed, 80% claimed their fear of death had decreased or vanished entirely, as opposed to 29% of a control sample of 38 nonNDErs who had been close to death. Ring's subjective impression from these interviews was that loss of fear of death was one of the strongest effects differentiating NDErs from nonNDErs.

Sabom (1982), in a study of patients who had had a life-threatening cardiac arrest, noted that those whose arrest precipitated an NDE lost much of their fear of dying immediately after the event, in contrast to those who did not have NDEs. Of 61 patients who reported NDEs, 82% claimed their fear of death had decreased, 18% claimed it had not changed, while none reported an increase. On the other hand, of 45 patients who did not report NDEs, 2% claimed their fear of death had decreased, 87% claimed it had not changed, and 11% claimed it had increased.

Six months after his initial interviews with these subjects, Sa-

bom mailed them the Death Anxiety Scale (Templer, 1970) and the Death Concern Scale (Dickstein, 1972). The 26 NDErs who returned these questionnaires scored significantly lower than did the 18 nonNDErs, on both the Death Anxiety Scale (NDErs' mean = 3.62; nonNDErs' mean = 6.39) and the Death Concern Scale (NDErs' mean = 58.1; nonNDErs' mean = 68.6).

A nationwide Gallup poll (Gallup & Proctor, 1982), which unfortunately did not consistently differentiate NDEs from other neardeath events, reported that over a third of individuals with "neardeath encounters" said their fear of death had decreased as a result. Ring (1984) called NDErs' permanent loss of fear of death one of the most consistent findings to emerge from near-death research. His studies corroborated Moody's impression that NDErs tend to see death not as annihilation, but as a transitional event between life before and after what we call death.

Flynn (1986) reported that of 21 NDErs, 100% claimed their fear of death had decreased. By contrast, of 12 survivors of close brushes with death who did not have NDEs, 42% claimed their fear of death had decreased, 25% reported it had not changed, and 33% claimed it had increased. Flynn's further investigations of these subjects suggested that this decreased fear of death among NDErs left them indifferent to the negative immortality striving that leads to selfish pursuit of unlimited wealth and competitive striving to achieve at others' expense.

While these studies are unanimous in reporting decreased death anxiety or fear of death after the NDE, they share two methodological limitations. First, with the exception of Sabom's (1982) use of the Death Anxiety Scale and Death Concern Scale, these researchers have relied on subjects' spontaneous descriptions of death attitudes or their responses to a single question regarding fear of death. Secondly, they have treated NDErs as a homogeneous group and not considered "depth" of the NDE as a possible influence on death attitudes.

Reliance on subjects' spontaneous expressions of death attitudes or direct inquiry about those attitudes has been criticized by Krieger, Epting, and Leitner (1974) as likely to yield superficial responses distorted by ego defense maneuvers and response sets. Those authors developed the Threat Index as a measure of the threat posed by the idea of an individual's imminent personal

death. Death threat is a comparatively stable cognitive orientation toward death, in contrast to death anxiety and fear of death, which are more conditional affective orientations toward death. The Threat Index (TI) was based on Kelly's (1955) psychology of personal constructs, which postulates that each individual develops a system of bipolar personal constructs to organize and attribute meaning to the world. Constructs are dimensions on which things can be judged as alike or different from each other, such as the dichotomies "predictable/random," "easy/hard," and "sick/healthy."

Kelly (1955) speculated that death would be a threat to most people because they view it as likely to cause drastic changes in them, but he did not see death as intrinsically threatening to life. Rather he argued that life and death can be construed as validating each other, so that living well and dying well go hand in hand (Kelly, 1961). Krieger, Epting, and Leitner (1974) suggested that the degree of threat presented by death would be proportional to the disparity between the individual's constructions of self and death. Individuals who describe both themselves and their imminent deaths similarly on many of their bipolar personal constructs would regard death as less of a change from their current status and therefore less threatening.

For the TI, death threat is operationalized as the respondents' reluctance to place both themselves and their imminent death on the same poles of a group of bipolar personal constructs relevant to the concept of death (Rigdon, Epting, Neimeyer, & Krieger, 1979). In the most common form of the TI, the TI-30, respondents are asked to rate "yourself" and then "your own imminent death" on each of 30 provided death-relevant constructs. Placement of self and death on opposite poles of a construct is called a "split," and the total number of such splits is the death threat score. Inability to place death on either pole of a bipolar construct is considered to indicate threat, as is therefore counted as a split (Krieger, Epting, & Leitner, 1974; Rigdon, Epting, Neimeyer, & Krieger, 1979).

A second scoring procedure has been developed for the TI that involves tabulating the number of splits between ratings of "yourself" and "your ideal or preferred self," as a measure of self/ideal self discrepancy or, inversely, actualization (Neimeyer & Chapman, 1981; Neimeyer, Epting, & Rigdon, 1983). It has been hypothe-

sized that individuals who have failed to actualize their ideals and have more self/ideal self splits would be more fearful of death; Robinson and Wood (1984-85) posited that both actualization (few self/ideal self splits) and integration of death into the personal construct system (few self/death splits) decrease fear of death in an additive fashion, although empirical support for that interaction is lacking (Neimeyer, 1985).

An exploration of the factor structure of the TI with state-of-the-art factor analytic procedures (Neimeyer, Moore, & Bagley, 1988) failed to find a satisfactory model to account for all of the variance, but did identify a factorially "pure" 7-item subset of the TI. Since death threat scores on this factorially pure 7-item subset, the TI-7, correlate highly with scores on the TI-30, the TI-7 is recommended as a factorially unambiguous and less "contaminated" measure of death threat.

TI scores have been shown to be stable over time and despite attempted experimental manipulation of death threat (Neimeyer, Dingemans, & Epting, 1977; Rigdon & Epting, 1985; Rigdon, Epting, Neimeyer, & Krieger, 1979). Rigdon and Epting (1985) concluded that, in contrast to the situational changes that can be experimentally induced in death anxiety and fear of death, meaningful changes in attitudes as complex as death orientation may require a more powerful intervention over a longer period of time.

Studies of the after-effects of near-death experiences suggest that an NDE might be a powerful enough experience to affect death threat. Neimeyer, Dingemans, and Epting (1977) had reported that previous closeness to dying in itself was not significantly associated with TI scores. In a post hoc analysis, Rigdon and Epting (1985) found that subjects reporting a previous close brush with death tended to have lower TI scores than those who did not report having been close to death, although that difference was not significant. They hypothesized retrospectively that near-death experiencers would be likely to view self and death as compatible and show less death threat, but they did not in fact determine whether their

Subsequent research by Moore and Neimeyer (1991) has established a confirmed factor structure for 25 items on the Threat Index, which can be interpreted as Threat to Well-Being (F1), Uncertainty (F2), and Fatalism (F3), in addition to an overall Global Threat factor.

subjects who reported previous close brushes with death also reported NDEs.

Near-death experiences can be identified from among reports of close brushes with death, and their "depth" quantified, by the NDE Scale; a 16-item multiple-choice instrument that is a reliable and valid measure of the occurrence and depth of an NDE (Greyson, 1983b) and that significantly differentiates NDEs from other near-death events (Greyson, 1990). For research purposes, a score of 7 or more points (out of a possible 32) on the NDE Scale has been recommended as the criterion for labeling an experience an NDE (Greyson, 1983b).

The present study was designed to explore the influence of near-death experiences, and of close brushes with death that are not accompanied by NDEs, on death threat, and secondarily on actualization, as measured by the TI. Two hypotheses suggested by previous research on NDEs are testable with the TI. The first hypothesis is that NDErs would show less death threat than would either nonNDErs who had come close to death or subjects who had never come close to death, as measured by self/death splits on the TI-30 and its more unambiguous subset, the TI-7. The second hypothesis is that NDErs would show greater actualization than either control group, as measured by fewer self/ideal self splits on the TI-30 and derivative TI-7.

Method

Subjects

Subjects were recruited through advertisements in the newsletter of the International Association for Near-Death Studies, an organization founded to promote research into NDEs. Respondents were asked whether they had personally had a close brush with death; and if so, they were asked whether they had had an NDE as a result of that near-death event and were asked to complete the NDE Scale to determine "depth" of NDE.

Included for analysis in this sample were 290 respondents: 135 individuals claimed to have had NDEs and described experiences that met the NDE Scale criterion for an NDE; 43 individuals de-

nied having had an NDE and described experiences that did not meet the NDE Scale criterion for an NDE; and 112 individuals denied ever having been near death.

These three groups differed somewhat in age and gender. The mean age of the NDErs was 49.3 years (SD=12.6); of the non-NDErs, 54.8 years (SD=14.2); and of the subjects who had never been near death, 46.0 years (SD=13.0). This age difference was significant (F=7.38; df=2, 287; p=.0011). The percent of NDErs who were female was 67.4; of nonNDErs, 55.8; and of subjects who had never been near death, 45.5. These gender ratios were also significantly different ($\chi^2=12.01$; df=2; p=.0025).

In addition to the 290 subjects described above, there were 30 respondents who were excluded from analysis: 11 individuals claimed to have had NDEs but reported experiences that did not meet the NDE Scale criterion for an NDE ("false positives"); and 19 individuals denied having had an NDE but nevertheless reported experiences that did meet the NDE Scale criterion for an NDE ("false negatives").

Materials and Procedure

Subjects were mailed questionnaires, which they completed and returned identified only by anonymous subject number. All subjects completed the TI-30, from which TI-7 scores were also derived; those who acknowledged having come close to death also completed the NDE Scale describing their near-death event. Subjects reporting more than one close brush with death were asked to complete one copy of the NDE Scale for each near-death event, and the one with the highest score was used for that subject.

NDE Scale scores were used, along with respondents' claims, to assign subjects to the NDEr or nonNDEr group, based on whether or not their experiences scored 7 or greater; and NDE Scale scores were also used to measure relative depth of each NDE.

For each subject, the number of splits between self and death elements on the TI-30 was computed as a measure of death threat; and splits between self and death elements on the TI-7 subset of the TI-30 were also computed as a factorially purer measure of death threat.

Two analyses of variance, one for TI-30 scores and one for TI-7 scores, were used to compare self/death splits of NDErs, nonNDErs who had been close to death, and subjects who denied ever having been close to death, in order to assess whether those groups differ from each other in death threat. Pearson's correlation coefficient was used to compare death threat scores with NDE Scale scores of NDErs only, in order to assess whether depth of NDE was inversely related to death threat.

The number of splits between self and ideal self elements on the TI-30 and on the TI-7 was also computed as a measure of self/ideal self discrepancy, or inversely, actualization. As with the death threat scores, two analyses of variance, one for TI-30 scores and one for TI-7 scores, were used to compare self/ideal self splits of NDErs, nonNDErs who had been close to death, and subjects who denied ever having been close to death, in order to assess whether these groups differ from each other in actualization. Pearson's correlation coefficient was used to compare self/ideal self splits with NDE Scale scores of NDErs only, in order to assess whether depth of NDE was negatively related to self/ideal self discrepancy or actualization.

Results

Death Threat Scores

The mean number of splits between self and death elements on the TI-30 for the entire pool of 290 subjects was 9.29 (SD = 6.96). The mean number of splits between self and death elements on the TI-30 for the three study groups was as follows: for NDErs, 7.85 (SD = 6.06); for nonNDErs who had been close to death, 10.12 (SD = 6.79); and for subjects never close to death, 10.71 (SD = 6.49). This difference was statistically significant (F = 6.67; df = 2, 287; p = .0019). That is, NDErs showed significantly less death threat than did nonNDErs or subjects who had never been near death.

For the 135 NDErs, there was a moderate but statistically significant negative correlation between self/death splits and NDE Scale scores (r = -.187; b = .0289). That is, among NDErs, deeper NDEs were associated with less death threat.

The mean number of splits between self and death elements on the factorially purer TI-7 for the entire pool of 290 subjects was 2.04 (SD = 2.08). The mean number of splits between self and death elements on the TI-7 for the three study groups was as follows: for NDErs, 1.57 (SD = 1.86); for nonNDErs who had been close to death, 2.35 (SD = 2.41); and for subjects never close to death, 2.47 (SD = 2.17). This difference also was statistically significant (F = 6.46; df = 2, 287; p = .0022). That is, NDErs again showed significantly less death threat than did nonNDErs or subjects who had never been near death.

For the 135 NDErs, there was again a moderate but statistically significant negative correlation between self/death splits and NDE Scale scores (r = -.173; p = .0455). That is, among NDErs, deeper NDEs were associated with less death threat.

Self/Ideal Self Discrepancy Scores

The mean number of splits between self and ideal self elements on the TI-30 for the entire pool of 290 subjects was 4.55 (SD = 5.01). The mean number of splits between self and ideal self elements on the TI-30 for the three study groups was as follows: for NDErs, 4.53 (SD = 5.10); for nonNDErs who had been close to death, 4.72 (SD = 4.76). This difference was not significant (F = 0.18; df = 2, 287).

For the 135 NDErs, there was a nonsignificant negative correlation between self/ideal self splits and NDE scores (r = -.111). That is, among NDErs, deeper NDEs tended to be associated with less self/ideal self discrepancy, or with greater actualization, but that tendency did not reach significance.

The mean number of splits between self and ideal self elements on the TI-7 for the entire pool of 290 subjects was 0.82 (SD = 1.29). The mean number of splits between self and ideal self elements on the TI-7 for the three study groups was as follows: for NDErs, 0.88 (SD = 1.35); for nonNDErs who had been close to death, 0.77 (SD = 1.44); and for subjects never close to death, 0.76 (SD = 1.14). This difference also was not significant (F = 0.31; df = 2, 287).

For the 135 NDErs, there was again a nonsignificant negative

correlation between self/ideal self splits and NDE scores (r = -.108). That is, among NDErs, deeper NDEs tended to be associated with greater actualization, but again not to a significant degree.

Discussion

Representative scores for the various formats of the TI have been published (Rigdon, Epting, Neimeyer, & Krieger, 1979); for the 30-item provided-constructs form used in this study, the mean number of self/death splits for a heterogenous sample was 10.00 (SD = 7.00). The nonNDErs who had been close to death in this study (mean = 10.12, SD = 6.79) and the subjects who had never come close to death (mean = 10.71, SD = 6.49) produced comparable scores, while the NDErs (mean = 7.85, SD = 6.06) showed significantly less death threat. Thus the decreased death threat shown by NDErs compared to control subjects in this study can be reasonably attributed to their lower degree of death threat and not to the control samples' unusually high levels of death threat.

Previous investigators have generally found that TI scores are not consistently or significantly influenced by age (Rainey & Epting, 1977; Rigdon, Epting, Neimeyer, & Krieger, 1979), though some samples have shown a modest decline in death threat with age (Neimeyer, Moore, & Bagley, 1988). NDErs in this study were between the two control groups in age, and significantly younger than the nonNDErs who had been close to death. Thus their lower death threat scores cannot be attributed to age.

Nor can the NDErs' lower death threat scores be attributed to their greater ratio of women to men (which was not significantly different from the ratio among nonNDErs who had been close to death); gender has not consistently been shown to correlate with TI scores, and most studies revealed no evidence of sex differences (Neimeyer, Moore, & Bagley, 1988; Rigdon, Epting, Neimeyer, & Krieger, 1979).

These data support Rigdon and Epting's (1985) hypothesis that NDErs would find death less threatening than control subjects. That effect, however, clearly was not related to the close brush with death in itself; subjects who reported close brushes with death with-

out NDEs showed as much death threat as did subjects who had never come close to death. Of course, since this association between NDEs and low death threat was demonstrated for subjects only after the near-death event, it does not allow us to differentiate whether NDEs decrease death threat or whether low death threat might predispose toward an NDE. However, there are theoretical arguments supporting the former hypothesis.

Moody (1975) and Ring (1984) attributed NDErs' decreased fear of death to their conviction that they would survive bodily annihilation. Bannister and Mair (1968), echoing Kelly's description of death as the ultimate threat in that it is likely to cause drastic changes in core constructs; added that death should be less threatening when the fundamental meaning of life is not affected by it, such as would be the case of a strong conviction in an afterlife. However, type of belief in an afterlife (personal annihilation, personal transition, or uncertainty) has not been found to be significantly associated with TI scores (Krieger, Epting, & Leitner, 1974; Neimeyer, Dingemans, & Epting, 1977).

Testing Becker's (1973) hypothesis that the purpose of religious belief is to decrease death threat by positing an afterlife, Tobacyk (1983) found that traditional religious beliefs showed a significant, though modest, negative correlation with TI scores, although he failed to find significant associations between TI scores and paranormal beliefs more directly bearing on an afterlife. Tobacyk concluded that traditional religious beliefs, unlike paranormal beliefs, have the institutionalized social support system needed to decrease death threat. Other researchers, however, have reached conflicting conclusions about the role of religious beliefs on death orientation (Rigdon & Epting, 1985).

This study does not directly address the problematic relation of afterlife beliefs to death threat. However, given that NDErs' conviction in an afterlife is derived from personal experience and not from traditional religious training, these data do not support Tobacyk's hypothesis that an institutional social support system is necessary for afterlife beliefs to influence death threat.

There is some evidence that a positive acceptance of death is associated with a healthy approach to life (Rigdon & Epting, 1985), although which attitude is cause and which is effect is problematic. It is reasonable that satisfaction with life, a sense of having actual-

dently of the meaning of death. ogists hold that the meaning of life cannot be construed indepenwith the prospect of personal death, and personal construct psycholthat the importance of life is often discovered through an encounter enhance satisfaction with life. Existential theorists have suggested acceptance of death would reduce anxiety over unmet goals and ized ideals, would decrease fear of death. It is also reasonable tha

self/ideal self splits on the TI did not seem to be associated with NDEs nor with decreased levels of death threat. versely, actualization. Thus, actualization as measured by fewer splits, indicating a lower degree of death threat, they had, comindicating a comparable degree of self/ideal self discrepancy or, in pared to control subjects, a similar number of self/ideal self splits, alized than control subjects. Though they did have fewer self/death This study did not provide evidence that NDErs are more actu

NDErs' attitudes toward life and its meaning as they relate to searchers' findings and this study's evidence of reduced death approximation to their ideal selves, given prior near-death rewell-being, tranquility, and zest for life. Thus, despite the indicaof death led to altered life goals and values and to enhanced health, changes in death orientation. threat following NDEs, further exploration is warranted into tion in this study that NDErs are equivalent to others in terms of death may be the critical factor in altering death orientation. Noyes not equally influential, that experiencing an NDE in the face of (1980) and Flynn (1982) both reported that NDErs' decreased fear This study suggests that all encounters with imminent death are

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