

Daily Spiritual Experiences Before and After Near-Death Experiences

Surbhi Khanna and Bruce Greyson
University of Virginia Health System

People who have near-death experiences (NDEs) often report a subsequently increased sense of spirituality and a connection with their inner self and the world around them. In this study, we examined daily spiritual experiences, using Underwood and Teresi's (2002) Daily Spiritual Experience Scale, among 229 persons who had come close to death. Frequency of daily spiritual experiences before the close brush with death did not differentiate participants who had NDEs ($n = 204$) from those who did not ($n = 25$). However, participants who described having had NDEs reported more daily spiritual experiences after their brush with death than those who did not, and frequency of daily spiritual experiences after the brush with death was positively correlated with depth of NDE. We discussed the implications of these findings in light of other reported aftereffects of NDEs and of daily spiritual experiences among other populations.

Keywords: near-death experience, daily spiritual experience, spirituality, religion, spiritual change

The term “spirituality” is used in multiple ways. In a religious context, it generally refers to the more intrinsic aspect of religious life; in other contexts, it generally refers to aspects of personal life that include the “transcendent,” something beyond the usual senses (Underwood, 2006). Spirituality can also be understood as a search for the sacred, a process through which people seek to discover, hold on to, and when necessary, transform whatever they hold sacred in their lives (Pargament, 1997, 1999). The sacred is a common denominator between religious and spiritual life and represents a vital destination sought by a person, and it is interwoven into the pathways many people take in life (Hill & Pargament, 2008).

For most people, spiritual development is neither distinct from nor antithetical to religious affiliation, identification, or involvement (Day, 2010). In contemporary American society, many people distinguish between “religion” and “spirituality” (Rambo & Haar Farris, 2012). Religion usually connotes specific behavioral, doctrinal, and institutional features whereas spirituality is typically used to represent an individual's subjective experiences in attempting to understand life's ultimate questions and find meaning and purpose that transcend the concerns of mundane life (Currier, Kim, Sandy, & Neimeyer, 2012; Rambo & Haar Farris, 2012).

The United States in particular has witnessed a polarization of religiousness and spirituality, with the former representing an institutional, formal, outward, doctrinal, authoritarian, inhibiting expression and the latter representing an individual, subjective, emotional, inward, unsystematic, and freeing expression (Koenig, King, & Carlson, 2012). Americans seem to be more comfortable with the freedom associated with spirituality, and implied in this distinction is the emphasis on personal choice and independence from the constraints of religious ideology (Rambo & Haar Farris, 2012). In 2005, 24% of the U.S. population said they would describe themselves as “spiritual, but not religious,” 9% indicated the opposite, and 55% said they were religious and spiritual (Schultz, 2005). These results are consistent with the concept of spirituality as an inner attitude different from religiosity, which relies on an outer institution and/or practices (Rowold, 2011).

Daily Spiritual Experience

Connection with the divine or transcendent is important in Eastern and Western traditions and in people's notions of spirituality in a more generic way (Underwood, 2006). Daily spiritual experience, encompassing constructs such as awe, gratitude, mercy, compassionate love, and sense of inner peace, was conceived as an indicator of spiritual experiences of connection with the transcendent playing out in the experiential and emotional details of daily life; it was intended to operationalize one major aspect of spirituality, but it does not capture the full construct (Underwood, 2006, 2011). Although it has been used as a proxy for spirituality (Underwood, 2011), in studies in which additional measures of religiousness or spirituality are also used, daily spiritual experience can function differently than religiousness or overall spirituality, such as in their association with marital satisfaction (Fincham, Ajayi, & Beach, 2011).

Daily spiritual experiences have been shown to enhance the lives of persons having them, having been linked to various positive outcomes in psychological state and relationships. A relationship with the transcendent appears to be enriching and important in and of itself, independent of any religious association. Hospital-

This article was published Online First August 18, 2014.

Surbhi Khanna and Bruce Greyson, Department of Psychiatry and Neurobehavioral Sciences, University of Virginia Health System.

At the time of this work, Surbhi Khanna was a Visiting Research Scholar at the Division of Perceptual Studies, University of Virginia School of Medicine. She is currently a psychiatric resident in the Department of Psychiatry and Neurobehavioral Medicine at the University of Virginia Health System.

Bruce Greyson is the Chester Carlson Professor of Psychiatry and Neurobehavioral Sciences and Director of the Division of Perceptual Studies at the University of Virginia Health System.

Correspondence concerning this article should be addressed to Bruce Greyson, Division of Perceptual Studies, University of Virginia Health System, 210 10th Street NE, Charlottesville, VA 22902-4754. E-mail: cbg4d@virginia.edu

ized patients who reported more frequent daily spiritual experiences have better social support, cognitive function, and cooperation with medical staff as well as less depression and need for long-term care (Koenig, George, Titus, & Meador, 2004).

Near-Death Experience

The term “near-death experience” (NDE) was coined by Moody (1975) to describe a collection of 15 elements that seemed to recur during a close brush with death. These elements were a sense of ineffability, hearing oneself pronounced dead, a feeling of peace, hearing unusual noises, seeing a dark tunnel, being out of the body, meeting spiritual beings, encountering a bright light or being of light, a panoramic life review, a realm where all knowledge exists, cities of light, a realm of bewildered spirits, a supernatural rescue, a border or a boundary, and coming back into the body (Moody, 1975). He defined NDEs as “profound spiritual events that happen, uninvited, to some individuals at the point of death” (Moody & Perry, 1988). A recent review of the accumulated findings from 30 years of research since Moody’s seminal work has essentially confirmed his original description; it noted that NDEs are typically conceptualized as profound perceptions suggestive of a transcendent reality occurring during a close brush with death, in turn conceptualized as a serious threat of imminent death (Zingrone & Alvarado, 2009).

An analysis of incidence of NDEs among critically ill patients as documented in nine prospective studies in four countries yielded an average estimate of 17% (Zingrone & Alvarado, 2009). With advancements in medical resuscitation techniques, the frequency of NDEs has increased; thus, approximately 9 million people in the United States alone have reported this kind of experience (van Lommel, 2011). In the last 30 years, the near-death phenomenon has been investigated extensively (Holden, Greyson, & James, 2009). Popular and academic curiosity about this topic have also escalated. A recent review of scholarly journals analyzed 829 peer-reviewed articles by 629 authors (Loseu, Holden, Kinsey, & Christian, 2013), and the search engine Google Scholar yields 440,000 articles about NDE, many of which relate to spirituality (Cant, Cooper, Chung, & O’Connor, 2012).

NDE and Spirituality

Many near-death experiencers (NDErs) report having had a transcendent experience involving travel to otherworldly realms, encountering mystical beings or a “being of light,” and assistance by spirits (Greyson, 2006). This kind of dramatic mystical experience is distinct from the more mundane kind of spiritual experience that the Daily Spiritual Experience Scale (DSES) was developed to measure (Underwood, 2006, 2011). However, people who have these more unusual and more intense NDEs often go on to seek meaning in their daily lives by incorporating a sense of awe and wonder in every moment of existence (Greyson, 2006; Noyes, Fenwick, Holden, & Christian, 2009). The spiritual awakening that often follows NDEs may reflect an attempt to relive and reexperience the overwhelming positive emotions felt during the NDE and appreciate the precious gift of life in search for the sacred.

NDEs and other transcendent experiences are often associated with radical and permanent transformations of experiencers’ attitudes, beliefs, and lifestyle. The aftereffects typically reported are

increases in spirituality, concern for others, and appreciation of life as well as decreases in the fear of death, materialism, and competitiveness (Greyson, 2006). A recent review of research into the characteristic changes after NDEs found the most commonly reported to be loss of fear of death; strengthened belief in life after death; feeling specially favored by God; a new sense of purpose or mission; heightened self-esteem; increased compassion and love for others; lessened concern for material gain, recognition, or status; greater desire to serve others; increased ability to express feelings; greater appreciation of and zest for life; increased focus on the present; deeper religious faith or heightened spirituality; search for knowledge; and greater appreciation for nature (Noyes et al., 2009).

Overview of Study

The goal of this study was to explore the relationship between NDE and daily spiritual experience. Although NDEs and daily spiritual experiences involve a sense of transcendence, the extreme and dramatic features of NDEs do not overlap significantly with the more mundane daily spiritual experiences as described by Underwood and Teresi (2002). The hypothesis to be tested in this study was whether extremely intense NDEs are associated subsequently with a more moderate spiritual appreciation of everyday events.

We used the Near-Death Experience Scale (Greyson, 1983) to identify and quantify NDE and the DSES (Underwood & Teresi, 2002) to assess the frequency of daily spiritual experience. To clarify the nature of the relationship between NDE and daily spiritual experience, we asked participants to rate their frequency of daily spiritual experience with regard to the period before their NDE and with regard to the period after their NDE. We hypothesized that frequency of daily spiritual experience before a close brush with death would not predict occurrence and depth of NDE, but that occurrence and depth of NDE would predict frequency of subsequent daily spiritual experience.

Method

Participants

Participants were 229 individuals who had previously contacted the authors to share their accounts of their experiences when they had come close to death. Of those 229 participants, 204 (89%) reported experiences that qualified as NDEs by scoring 7 or higher on the NDE Scale (see NDE) whereas 25 (11%) reported experiences that did not.

Table 1 lists demographic variables and parameters of the close brush with death for the NDErs and nonexperiencers. In terms of demographic variables, the two groups were statistically indistinguishable in gender; ethnicity; and religious identification, which was categorized as Catholic, Protestant, “other” religious identification (including various non-Christian denominations and “spiritual but not religious”), and agnostic or atheist. In terms of details of the close brush with death, the two groups were statistically comparable in age at the time of the near-death event, years elapsed since that experience, and self-reported closeness to death. However, the overall emotional tone of the experience was signif-

Table 1
Demographic and Brush-With-Death Characteristics of the Participants

Variable	NDErs	Non-NDErs	Test Statistic	<i>p</i>
Gender			$\chi^2 = 0.90$ ($df = 1$)	<i>ns</i>
Male	55 (27%)	9 (36%)		
Female	149 (73%)	16 (64%)		
Ethnicity			$\chi^2 = 0.31$ ($df = 1$)	<i>ns</i>
Caucasian	180 (88%)	12 (92%)		
Other	24 (12%)	2 (8%)		
Religious identification			$\chi^2 = 4.56$ ($df = 3$)	<i>ns</i>
Catholic	32 (17%)	3 (13%)		
Protestant	58 (31%)	7 (29%)		
Other, non-Christian	88 (47%)	10 (42%)		
Atheist or agnostic	10 (5%)	5 (17%)		
Age at time of brush with death	28.8 (± 13.0)	33.0 (± 17.5)	$t = -1.48$ ($df = 225$)	<i>ns</i>
Years since brush with death	35.6 (± 15.4)	37.2 (± 18.3)	$t = -0.48$ ($df = 214$)	<i>ns</i>
Closeness to death			$\chi^2 = 4.01$ ($df = 2$)	<i>ns</i>
Loss of vital signs or declared dead	55 (32%)	3 (17%)		
Life threatened without loss of vital signs	56 (33%)	10 (56%)		
Life not threatened	61 (36%)	5 (28%)		
Emotional tone of experience			$\chi^2 = 41.55$ ($df = 2$)	<.001
Pleasant	179 (89%)	10 (40%)		
Neutral or mixed	11 (6%)	10 (40%)		
Unpleasant	11 (6%)	5 (20%)		

icantly more pleasant among those who reported NDEs and more neutral or unpleasant among those who did not.

Procedure

Participants were mailed or e-mailed a brief questionnaire about their demographic background and details of their close brush with death as well as two standardized, self-rated questionnaires: the NDE Scale and the DSES. They were asked to complete the DSES twice: once with regard to the retrospective period before the close brush with death and a second time with respect to the concurrent period since the close brush with death. Participants completed these questionnaires at a time and place of their choosing and returned them by mail or e-mail.

Measures

NDE. The NDE Scale (Greyson, 1983), a self-rated, 16-item, multiple-choice questionnaire, was used to assess NDEs. It has been shown to differentiate NDEs from other close brushes with death (Greyson, 1990); to correlate highly with the Weighted Core Experience Index (Ring, 1980), an earlier measure of NDEs ($r = .90$, $p < .001$); and to have high internal consistency (Cronbach's $\alpha = .88$), split-half reliability ($r = .84$, $p < .001$), and test-retest reliability over a short-term period of 6 months ($r = .92$, $p < .001$; Greyson, 1983) and over a long-term period of 20 years ($r = .83$, $p < .001$; Greyson, 2007). A Rasch rating-scale analysis established that the NDE Scale yields a unidimensional measure, invariant across gender, age, intensity of experience, or time elapsed since the experience (Lange, Greyson, & Houran, 2004). Although the NDE Scale was developed as an ordinal scale without quantified anchor points, the fact that it satisfactorily fits the Rasch model suggests that for all practical purposes, there do appear to be equal distances between the points of measurement that give the

scale interval-level measurement properties (Wright & Masters, 1982).

The 16 items on the NDE Scale explore cognitive changes during the experience, such as an altered sense of time; affective changes, such as intense feelings of peace; purportedly paranormal experiences, such as a sense of separation from the physical body; and purportedly transcendental experiences, such as an encounter with a mystical being or presence. Scores on the NDE Scale can range from 0 to 32; a score of 7, 1 *SD* below the mean of 15, is generally used as a criterion for considering an experience to be a NDE (Greyson, 1983).

Daily spiritual experience. The DSES was developed by Underwood and Teresi (2002) to measure ordinary spiritual experiences of connection with the transcendent in daily life (Underwood, 2006, 2011; Underwood & Teresi, 2002). It was constructed to be one module in a multidimensional measure of religiousness/spirituality, funded by the National Institute on Aging and the Fetzer Institute, to assess the health implications of religiousness and spirituality (Idler et al., 2003). Subsequent analysis has found that the DSES forms a useful and psychometrically valid single factor within the larger Multidimensional Measurement of Religiousness/Spirituality (Stewart & Koeske, 2006).

The DSES was constructed as a scale equally acceptable to those comfortable with theistic language and those who are not (Underwood, 2011). The DSES includes constructs such as awe, gratitude, mercy, sense of connection with the transcendent, compassionate love, awareness of discernment or inspiration, and sense of deep inner peace. Perhaps because the experiences tapped by this scale are feelings and sensations, rather than specific cognitive beliefs (Underwood, 2011), items on the DSES resonate with many people who do not identify themselves as religious but do feel a connection with something unseen that transcends the individual (Currier et al., 2012; Underwood, 2011).

The DSES is a 16-item self-report modified Likert-type instrument administered together with a brief introduction. Cronbach's α values for the scale have consistently been 0.89 and higher with adequate item distribution and skew as well as good test-retest reliability on the order of 0.85 (Underwood, 2011). Despite some trait-like consistency over time, the DSES also demonstrates state-like variability over time, and repeated administrations have been used to document change over time in various health-care, substance abuse, education, and religious studies (Underwood, 2006, 2011).

Some studies have factored the DSES into two components comprising nine "God-items," referred to as the Theistic factor, and five "non-God-items," referred to as the Self-Transcendent factor, although the specific items loading on each factor may differ from one study to another and scores on the two factors were highly correlated (Currier et al., 2012; Zemore & Kaskutas, 2004). Self-identified theists and nontheists do not generally respond to the two factors differently (Underwood, 2011). The original article on the scale's psychometric properties demonstrated a single factor (Underwood & Teresi, 2002), and translations of the DSES into Chinese, Spanish, French, Brazilian Portuguese, and German have shown loading on a single factor, suggesting that the single factor solution is the preferred one at this point (Underwood, 2011), although there are suggestions that the scale items may cluster meaningfully within certain populations based on their theistic assumptions (Underwood, 2006).

For the purposes of this study, mean per-item scores were calculated as the most useful measure for analysis rather than total score, and the DSES was scored with higher scores indicating more frequent daily spiritual experiences, as recommended to reduce confusion (Underwood, 2011). In addition, ratings on the final item, which has a four-point Likert scale, were spread over a six-point spectrum, as recommended to facilitate calculation of a total mean per-item score (Underwood, 2006).

Statistical Analysis

Pearson correlation coefficients were used to assess the associations of DSES scores with NDE Scale scores, and the association between DSES scores before and since the close brush with death; *t* tests were used to assess the association of DSES scores with having or not having a NDE during the close brush with death. All data analyses were performed using SPSS 20 (IBM, Armonk, NY).

Results

NDE

Scores on the NDE Scale ranged from 0 to 32, with a mean of 15.01 ($SD = 6.73$); Cronbach's α was .82. Among those participants who had NDEs, NDE Scale scores ranged from 7 to 32, with a mean of 16.40 ($SD = 5.87$), and among those participants who did not have NDEs, NDE Scale scores ranged from 0 to 6, with a mean of 4.28 ($SD = 1.72$). The difference between the two groups was statistically significant ($t = 10.24$, $df = 229$, $p < .001$).

Daily Spiritual Experience Before and Since the Close Brush With Death

For the retrospective period before the close brush with death, mean per-item score on the DSES was 2.71 ($SD = 1.08$). It should be noted that 11 (5%) of the NDErs and 3 (12%) of the non-NDErs did not complete the DSES for the period before the close brush with death because that event had occurred during early childhood. For the concurrent period since the close brush with death, mean per-item score on the DSES was 4.35 ($SD = 1.17$). DSES scores for the periods before and since the close brush with death were positively correlated ($r = .40$, $p < .001$). Cronbach's α for the DSES in this sample was .95.

Daily Spiritual Experience Before the Close Brush With Death and NDEs

For the retrospective period before the close brush with death, the mean DSES score for the NDErs was 2.72 ($SD = 1.08$) and for those who did not have NDEs it was 2.62 ($SD = 1.07$). As shown in Figure 1, scores on the DSES before the close brush with death were statistically indistinguishable between those participants who reported NDEs than those who did not ($t = 0.43$, $df = 212$; *NS*). Likewise, depth of NDE as measured by continuous NDE Scale score was not significantly associated with scores on the DSES for the period before the close brush with death ($r = .05$, *ns*).

Daily Spiritual Experience Since the Close Brush With Death and NDEs

For the concurrent period since the close brush with death, the mean DSES score for NDErs was 4.50 ($SD = 1.05$), and for those who did not have NDEs it was 3.16 ($SD = 1.38$). As shown in Figure 2, scores on the DSES since the close brush with death were significantly higher for those participants who reported NDEs than for those who did not ($t = 5.81$, $df = 227$, $p < .001$). Likewise, depth of NDE as measured by continuous NDE Scale score was positively associated with scores on the DSES for the period since the close brush with death ($r = .46$, $p < .001$).

Scores for 15 of the 16 individual items on the DSES were significantly higher for those participants who reported NDEs than for those who did not, the exception being "I feel thankful for my blessings," which was the item most frequently endorsed by the non-NDErs. Scores on each individual item were significantly associated with scores on the NDE Scale, with correlation coefficients ranging from .18 for "I feel thankful for my blessings" to .43 for "During worship, or at other times when connecting to God, I feel joy, which lifts me out of my daily concerns."

An exploratory factor analysis of the DSES for the period after the NDE yielded one factor with an eigenvalue of 9.475 that explained 59% of the variance. All 16 items loaded significantly onto this single factor, with factor loadings ranging from .47 to .89, and all were statistically significant at $p < .001$. No other component extracted had an eigenvalue greater than 1.

Change in Daily Spiritual Experience and NDEs

The mean change in DSES score for the entire sample from before to after the close brush with death was +1.70 (± 1.20). This increase

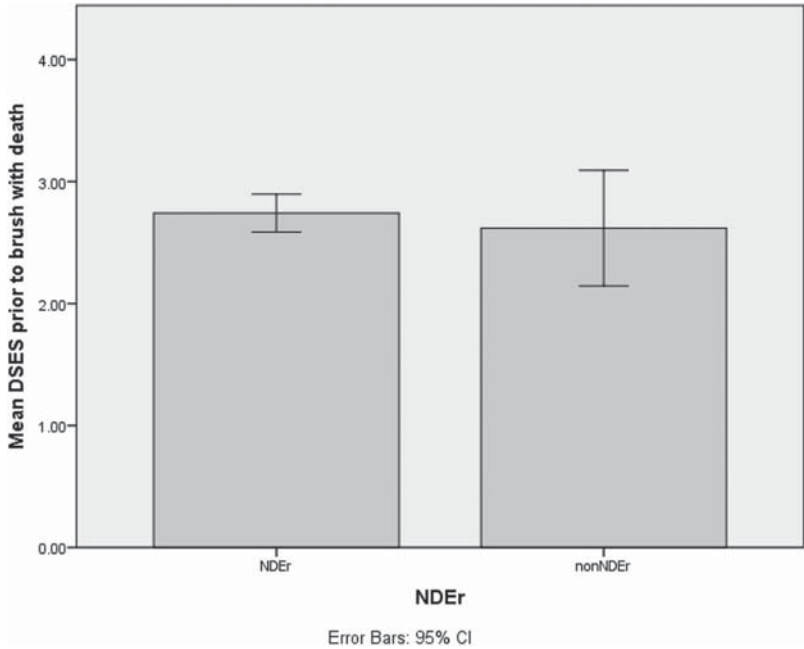


Figure 1. Scores on DSES before the close brush with death.

in daily spiritual experience was statistically significant ($t = 20.29$, $df = 213$, $p < .001$) and was positively correlated with depth of NDE as measured by the NDE Scale ($r = .36$, $p < .001$). The increase in DSES score from before to after the close brush with death for NDErs was 1.81 ($SD = 1.18$) and for those who did not have NDEs it was 0.65 ($SD = 0.88$). As shown in Figure 3, the difference between the two groups was statistically significant ($t = 4.48$, $df = 214$; $p < .001$).

Discussion

Data from this study suggest that NDEs are associated with an increase in daily spiritual experiences as measured by the DSES and that this increase varied proportionally with the “depth” of the NDE. Frequency of daily spiritual experience was significantly higher after the close brush with death than before the close brush

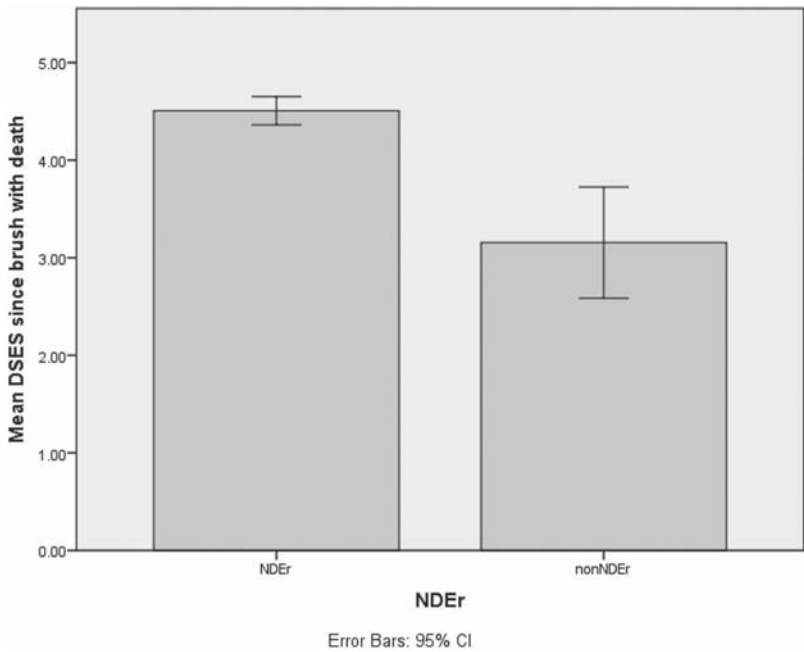


Figure 2. Scores on DSES since the close brush with death.

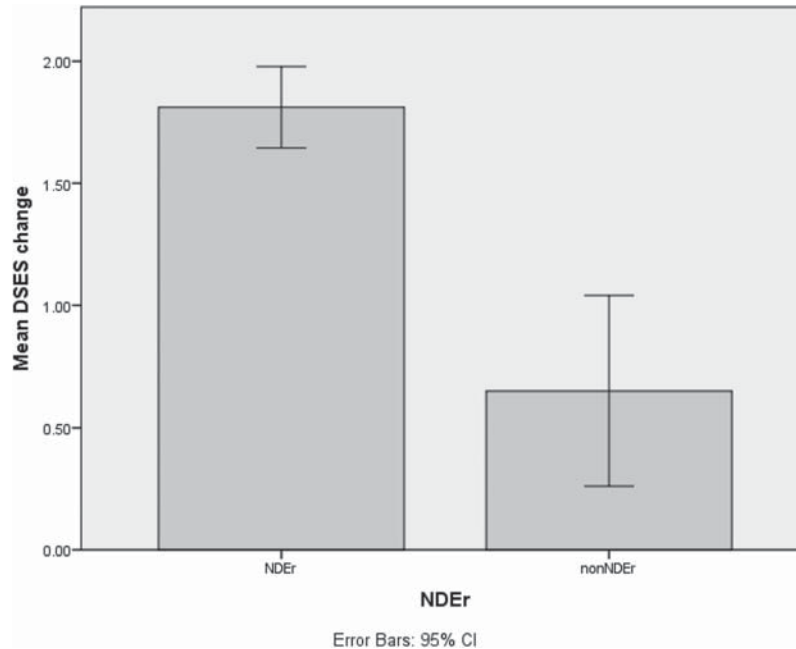


Figure 3. Change in DSES scores from before to since the close brush with death.

with death. Further, frequency of daily spiritual experience after the close brush with death was significantly higher for those participants who reported NDEs than for those who did not. In addition, among those who did have NDEs, depth of NDE as measured by continuous NDE Scale score was positively associated with frequency of daily spiritual experience since the close brush with death. It is plausible that deeper NDEs may promote a stronger connection with the inner spiritual self, which translates into significantly more frequent daily spiritual experiences compared with people who come close to death and do not experience an NDE. However, it should be noted that even participants who did not have NDEs reported an increase in daily spiritual experiences since their close brush with death, albeit significantly smaller than that of NDErs.

The association between depth of NDE and increase in daily spiritual experience raises the question of whether some underlying personality factor mediating perception might influence reports of NDEs and daily spiritual experiences. However, 30 years of investigation into possible personality traits influencing NDE incidence or content have failed to identify any such factor (Holden, Long, & MacLurg, 2009). Furthermore, the absence of any difference in daily spiritual experience between NDErs and non-NDErs before the close brush with death makes the influence of a predisposing personality factor a less tenable hypothesis.

Prior research has established that NDErs often report a greater appreciation for life, a renewed sense of purpose, greater confidence and flexibility in coping with life's vicissitudes, increased values of love and service, greater compassion for others, a heightened sense of spiritual purpose, decreased concern with personal status and material possessions, and a greatly reduced fear of death (Greyson, 2006; Noyes et al., 2009). This study extends those findings to suggest that NDErs also report significantly more daily

spiritual experiences. It is possible that the increase in daily spiritual experiences noted after NDEs is related not to the NDE itself but rather to the previously noted changes in spiritual attitudes and practices, which might function as intervening variables mediating the association shown here between NDEs and subsequent increase in daily spiritual experience.

An exploratory factor analysis of the DSES among participants who had NDEs resulted in one meaningful factor that included all 16 items. This result was compatible with several prior studies suggesting that a one-factor solution was preferred (Underwood, 2011), although in certain populations the scale yielded distinct factors that seemed to reflect Theistic and Self-Transcendent elements. Currier et al. (2012) suggested that theistic items were more often endorsed by those with a more formal religious orientation, whereas self-transcendent items seemed unrelated to religiousness. Those with a greater sense of internalized religiousness seemed to equally engage theistic and nontheistic approaches (Currier et al., 2012). NDEs have been shown previously to be associated with a decrease in allegiance to formal religious organizations and practices and an internalized sense of relationship to the transcendent (Greyson, 2006). Data from this study were consistent with those findings in that NDErs endorsed all of the theistic and all but one of the self-transcendent items more frequently than nonexperiencers, more frequently than they had before their NDEs, and in direct proportion to the depth of their NDE. Thus, NDErs do not seem to be a group for which the distinction between theistic and nontheistic items is meaningful.

Limitations

The self-selection of participants in this study may have limited the generalizability of these findings. We have no guarantee that participants were comparable to NDErs who did not choose to

participate in the study. It is conceivable that NDErs who had a subsequent increase in daily spiritual experience were more likely to participate than those who did not. However, our study sample did include participants who reported a wide range of daily spiritual experience frequencies.

In addition, our reliance on retrospective self-reports of experiences may limit confidence in our findings. Any retrospective report of subjective experience may be vulnerable to memory decay, distortion, or fabrication. A prior study of the consistency of NDE Scale scores over a period of decades suggested that passage of time did not materially influence memories of the experience (Greyson, 2007). However, there are no comparable data bearing on the reliability of DSES scores over a period of many years. The DSES was originally developed to focus on daily spiritual experiences in the present and the recent past, and it has not previously been used to assess experiences in the remote past. There is no empirical or theoretical basis for suspecting the DSES to be any more or less prone to retrospective bias than any other instrument (L. Underwood, personal communication, February 11, 2013). However, one might expect that if memory bias were playing a role in the present study, NDErs, who reported more frequent daily spiritual experiences than non-NDErs in the present, might also report more frequent daily spiritual experiences in the past because of their increased attention to the transcendent in life. However, that was not the case.

In addition, a post hoc analysis of the effect of years elapsed since the close brush with death did not show any consistent bias in reports of either NDE or daily spiritual experience. Number of years elapsed since the brush with death (range = 4–81 years) was not significantly associated with scores on the NDE Scale ($r = -.11$), DSES scores for the retrospective period before the close brush with death ($r = .05$), or DSES scores for the concurrent period since the brush with death ($r = .01$).

This study assumed that NDEs are unitary phenomena, and indeed a Rasch rating-scale analysis of the NDE Scale lends statistical support to that unidimensional approach (Lange et al., 2004). However, it is conceivable that different types of NDE might be differentially associated with subsequent spiritual growth. The possibility of differential effects of different types of NDE might further limit the generalizability of these findings and suggest future research aimed at elucidating the particular NDE features that may be associated with subsequent increase in daily spiritual experience. For example, it may be helpful in future research to distinguish among (a) pleasurable versus distressing NDEs; (b) NDEs that involve specific phenomenological features, such as apparent out-of-body experiences or apparent visits to other realms; (c) NDEs associated with different kinds of near-death crises; and (d) NDEs occurring in the setting of specific religious or spiritual rituals (Hood & Williamson, 2011). This study showed that deeper NDEs are associated with quantitatively more daily spiritual experiences; it may also be fruitful to look for qualitative differences in daily spiritual experience with increasing NDE depth.

Finally, participants from different cultural or faith backgrounds may differ in their understanding of the items pertaining to spiritual experience, and to the extent that that problem exists, it may be obscured by the mass distribution of standardized questionnaires as in this study (Chen, Yang, Hood, & Watson, 2011).

Conclusion

The data from this study suggest that NDEs may be considered a form of spiritual awakening in that individuals have subsequently more daily spiritual experiences. These data also provide additional support for the utility of the DSES and provide additional evidence for the one-factor solution among populations without a specific formal theistic orientation. We hope that further investigation into NDEs may provide access to aspects of consciousness that have been to this date difficult to evaluate in scientific terms but that may illuminate ways of enhancing quality of life. Understanding the mechanisms behind the association between NDE and daily spiritual experience may provide insight into fundamental questions of the quest for meaning.

References

- Cant, R., Cooper, S., Chung, C., & O'Connor, M. (2012). The divided self: Near-death experiences of resuscitated patients—A review of literature. *International Emergency Nursing*, 20, 88–93. doi:10.1016/j.ienj.2011.05.005
- Chen, Z., Yang, L., Hood, R. W., & Watson, P. J. (2011). Mystical experience in Tibetan Buddhists: Common core thesis revisited. *Journal for the Scientific Study of Religion*, 50, 328–338. doi:10.1111/j.1468-5906.2011.01570.x
- Currier, J. M., Kim, S.-H., Sandy, C., & Neimeyer, R. A. (2012). The factor structure of the Daily Spiritual Experience Scale: Exploring the role of theistic and nontheistic approaches to the end of life. *Psychology of Religion and Spirituality*, 4, 108–122. doi:10.1037/a0027710
- Day, J. (2010). Religion, spirituality, and positive psychology in adulthood: A developmental view. *Journal of Adult Development*, 17, 215–229. doi:10.1007/s10804-009-9086-7
- Fincham, F. D., Ajayi, C., & Beach, S. R. H. (2011). Spirituality and marital satisfaction in African American couples. *Psychology of Religion and Spirituality*, 3, 259–268. doi:10.1037/a0023909
- Greyson, B. (1983). The Near-Death Experience Scale: Construction, reliability, and validity. *Journal of Nervous and Mental Disease*, 171, 369–375. doi:10.1097/00005053-198306000-00007
- Greyson, B. (1990). Near-death encounters with and without near-death experiences: Comparative NDE Scale profiles. *Journal of Near-Death Studies*, 8, 151–161. doi:10.1007/BF01074000
- Greyson, B. (2006). Near-death experiences and spirituality. *Zygon*, 41, 393–414. doi:10.1111/j.1467-9744.2005.00745.x
- Greyson, B. (2007). Consistency of near-death experience accounts over two decades: Are reports embellished over time? *Resuscitation*, 73, 407–411. doi:10.1016/j.resuscitation.2006.10.013
- Hill, P., & Pargament, K. (2008). Advances in the conceptualization and measurement of religion and spirituality: Implications for physical and mental health research. *Psychology of Religion and Spirituality*, 1(1), 3–17. doi:10.1037/1941-1022.S.1.3
- Holden, J. M., Greyson, B., & James, D. (Eds.). (2009). *The handbook of near-death experiences: Thirty years of investigation*. Santa Barbara, CA: Praeger/ABC-CLIO.
- Holden, J. M., Long, J., & MacLurg, B. J. (2009). Characteristics of Western near-death experiencers. In J. M. Holden, B. Greyson, & D. James, (Eds.), *The handbook of near-death experiences: Thirty years of investigation* (pp. 109–133). Santa Barbara, CA: Praeger/ABC-CLIO.
- Hood, R. W., & Williamson, W. P. (2011). Near-death experience from serpent bites in religious settings. *Interdisciplinary Journal of Research on Religion*, 7, 1–19.
- Idler, E. L., Musick, M. A., Ellison, C. G., George, L. K., Krause, N., Ory, M. G., . . . Williams, D. R. (2003). Measuring multiple dimensions of religion and spirituality for health research. *Research on Aging*, 25, 327–365. doi:10.1177/0164027503025004001

- Koenig, H. G., George, L. K., Titus, P., & Meador, K. G. (2004). Religion, spirituality, and acute care hospitalization and long-term care used by older patients. *Archives of Internal Medicine*, 164, 1579–1585. doi:10.1001/archinte.164.14.1579
- Koenig, H., King, D., & Carlson, V. B. (2012). *Handbook of religion and health* (2nd ed.). New York, NY: Oxford University Press.
- Lange, R., Greyson, B., & Houran, J. (2004). A Rasch scaling validation of a 'core' near-death experience. *British Journal of Psychology*, 95, 161–177. doi:10.1348/000712604773952403
- Loseu, S., Holden, J. M., Kinsey, L., & Christian, R. (2013). The field of near-death studies through 2011: An undated analysis of the scholarly periodical literature. *Journal of Near-Death Studies*, 31, 189–202.
- Moody, R. A. (1975). *Life after life*. Covington, GA: Mockingbird Books.
- Moody, R. A., & Perry, P. (1988). *The light beyond*. New York, NY: Bantam Books.
- Noyes, R., Fenwick, P., Holden, J. M., & Christian, S. R. (2009). After-effects of pleasurable Western adult near-death experiences. In J. M. Holden, B. Greyson, & D. James, (Eds.), *The handbook of near-death experiences: Thirty years of investigation* (pp. 41–62). Santa Barbara, CA: Praeger/ABC-CLIO.
- Pargament, K. (1997). *The psychology of religion and coping: Theory, research, and practice*. New York, NY: Guilford Press.
- Pargament, K. (1999). The psychology of religion and spirituality? Yes and no. *International Journal for the Psychology of Religion*, 9, 3–16. doi:10.1207/s15327582ijpr0901_2
- Rambo, L., & Haar Farris, M. (2012). Psychology of religion: Toward a multidisciplinary paradigm. *Pastoral Psychology*, 61, 711–720. doi:10.1007/s11089-011-0372-5
- Ring, K. (1980). *Life at death: A scientific investigation of the near-death experience*. New York, NY: Coward, McCann & Geoghegan.
- Rowold, J. (2011). Effects of spiritual well-being on subsequent happiness, psychological well-being, and stress. *Journal of Religion and Health*, 50, 950–963. doi:10.1007/s10943-009.9316-0
- Schultz, S. (2005). Newsweek/Beliefnet poll finds majority of Americans consider spirituality "very important" in their daily lives. Retrieved February 17, 2013, from <http://www.beliefnet.com/News/2005/08/Newsweekbeliefnet-Poll-Results.aspx>
- Stewart, C., & Koeske, G. F. (2006). A preliminary construct validation of the Multidimensional Measurement of Religiousness/Spirituality Instrument: A study of Southern USA. *International Journal for the Psychology of Religion*, 16, 181–196. doi:10.1207/s15327582ijpr1603_3
- Underwood, L. G. (2006). Ordinary spiritual experience: Qualitative research, interpretive guidelines, and population distribution for the Daily Spiritual Experience Scale. *Archive for the Psychology of Religion/Archiv für Religionspsychologie*, 28, 181–218. doi:10.1163/008467206777832562
- Underwood, L. G. (2011). The Daily Spiritual Experience Scale: Overview and results. *Religions*, 2, 29–50. doi:10.3390/rel2010029
- Underwood, L. G., & Teresi, J. A. (2002). The Daily Spiritual Experience Scale: Development, theoretical description, reliability, exploratory factor analysis, and preliminary construct validity using health-related data. *Annals of Behavioral Medicine*, 24, 22–33. doi:10.1207/S15324796ABM2401_04
- van Lommel, P. (2011). Near-death experiences: The experience of the self as real and not as an illusion. *Annals of the New York Academy of Sciences*, 1234, 19–28. doi:10.1111/j.1749-6632.2011.06080.x
- Wright, B. D., & Masters, G. N. (1982). *Rating scale analysis: Rasch measurement*. Chicago, IL: MESA Press.
- Zemore, S. E., & Kaskutas, L. A. (2004). Helping, spirituality, and Alcoholics Anonymous in recovery. *Journal of Studies on Alcohol*, 65, 383–391.
- Zingrone, N. L., & Alvarado, C. S. (2009). Pleasurable Western adult near-death experiences: Features, circumstances, and incidence. In J. M. Holden, B. Greyson, & D. James, (Eds.), *The handbook of near-death experiences: Thirty years of investigation* (pp. 17–40). Santa Barbara, CA: Praeger/ABC-CLIO

Received April 20, 2013

Revision received March 10, 2014

Accepted May 12, 2014 ■

E-Mail Notification of Your Latest Issue Online!

Would you like to know when the next issue of your favorite APA journal will be available online? This service is now available to you. Sign up at <http://notify.apa.org/> and you will be notified by e-mail when issues of interest to you become available!