

VIEWPOINT

Features of "near-death experience" in relation to whether or not patients were near death

J. E. OWENS E. W. COOK I. STEVENSON

The medical records of 58 patients, most of whom believed they were near death during an illness or after an injury and all of whom later remembered unusual experiences occurring at the time, were examined. 28 patients were judged to have been so close to death that they would have died without medical intervention; the other 30 patients were not in danger of dying although most of them thought they were. Patients of both groups reported closely similar experiences but patients who really were close to death were more likely than those who were not to report an enhanced perception of light and enhanced cognitive powers. The claim of enhancement of cognitive functions despite the likelihood that brain function had probably become disturbed and possibly diminished, deserves further investigation.

Lancet 1990; **336**: 1175-77.

Introduction

In the past 15 years there have been numerous reports on the experiences of persons who, when they seemed to be dying or near death, nevertheless thought that their mental functions were intact or improved and that they were feeling well or even better than usual. Near-death experiences (NDEs), as these experiences have come to be called, have been reported sporadically, at least from the time of Plato,¹ more often outside²⁻⁵ than within⁶⁻⁸ medical publications. In recent years improvements in medical care, combined with widespread publicity, have increased the numbers of such reports and hence the possibility of examining series of them for recurrent features and correlations.⁹⁻¹¹ Some commentators have claimed that these reports provide a glimpse of the existence awaiting us after death, whereas others have suggested that the experiences are the result of physiological or pharmacological states accompanying the process of dying,¹²⁻¹⁶ or are a psychological response to the perceived threat of dying.¹⁷⁻¹⁹ All three of these major classes of theories—the transcendental, the physiological, and the psychological—have been based primarily on the assumption that the patients were near death at the time of their experiences. Most authors of reports of these experiences have accepted their patients' statements about their physiological condition at face value; only Sabom¹⁰ and Morse and his colleagues^{20,21} provided medical data about their patients' conditions at the time of the experience. Other

authors have suggested that experiences closely resembling those reported by persons near death may occur in persons who are not near death,²² but, with rare exceptions,²³ such conclusions have not been derived from studies of medical records.

We have thus examined the medical records of cases that we had investigated. In a previous paper²⁴ two of us (with another colleague) reported that, of 40 patients who remembered experiences when they thought they were close to death, 22 (55%) were not close to death, as judged by their medical records. An analysis of the features of the experiences of patients with and without medical records showed no difference except that the proportion of patients who saw their own body from a different position in space was greater among those with medical records (65%) than among those without (43%).²⁴ Nevertheless, 16 (73%) of the patients who were not near death believed that they were. We suggested that the belief of being about to die had been the principal precipitant of their experiences—ie, that the psychological explanation was most likely. To find out whether the experiences of those subjects actually near death differed in any significant way from those subjects not near death, and in the hope that the answers would shed further light on the strengths and weaknesses of the three major interpretations of NDEs, we have examined the features of the experiences according to whether or not patients were near death.

Patients and methods

Patients

Adequate medical records were available for 58 patients with NDEs. These came from a larger sample of 130 cases that had been reported to us over the past 30 years, either by the patients themselves or (less frequently) by someone else familiar with our research.

We obtained data about the circumstances and features of the patients' experiences through written accounts (usually the initial letter) sent to us by the patient, through interviews by one (or more) of the three authors (35 cases, or 60%), and through questionnaires completed by 44 (76%) of the patients. (Because some patients moved away, died, or otherwise became unavailable, we have not had interviews with or obtained questionnaires from all, and some of our data are therefore incomplete; but all data are derived from the patient's own testimony.)

The 58 patients (24 male, 34 female) had a median age of 36 years (range 11-76) at the time of the NDE, and the median interval before the NDE was reported to us was 7 years (range 1 month-45 years). In 41 (71%) cases the NDE was precipitated by an illness, surgery, or childbirth; in 13 (22%) it resulted from an accident; and in 4 (7%) the patient had deliberately taken an overdose of drugs.

Evaluation of the medical records

The medical records came from many hospitals and varied greatly in the amount of detail. We have included all cases for which there seemed adequate information in the records to make a judgment about the gravity of the patient's condition. Each of the 58 cases was assigned to one of the following four categories: (1) no serious illness or injury; (2) serious illness or injury, but not in danger of dying; (3) serious illness that might have led to death without medical or surgical intervention; and (4) significant impairment of vital signs presaging death without medical intervention or surgical intervention. The 40 cases reported in our earlier paper²⁴ were rated independently by each of the three authors of that paper; medical records for an additional 18 cases were collected after the publication of that paper, and these records were evaluated independently by I.S. and E.W.C. The raters often knew the nature of a patient's experience or the patient's evaluation of his or her condition, because they had interviewed many of the

patients or had earlier read their accounts or questionnaires. However, they derived their evaluations of the patients' physical conditions entirely from information contained in the medical records.

10 patients had had their experience before being admitted to the hospital while they were at home or on the way to the hospital, usually in an ambulance. In at least some of these cases doctors or other health personnel almost certainly intervened with drugs or other remedial measures before the patient's arrival at the hospital. If the patient's condition had improved (or worsened) by the time of arrival at the hospital the medical records would not necessarily show what it had been earlier. For such patients we have accepted the patient's condition to be that stated in the medical records but have noted that "ambulance ride" cases require special attention.

After the raters had made their assessments, they discussed any differences, sometimes with a further review of the medical records, until they reached agreement on a final rating.

Nearly all the disagreements in initial ratings occurred in discrimination between categories 1 and 2 and categories 3 and 4. On the question of whether the patient had or had not been near death the raters agreed—in their independent ratings—in 48 (83%) of the cases.

The final ratings grouped the 58 patients as follows: 18 patients in category 1, 12 in category 2, 10 in category 3, and 18 in category 4—ie, 30 (52%) patients had not been near death (categories 1 and 2) and 28 (48%) had (categories 3 and 4).

Features of the experiences examined

We examined a large number of features commonly reported by persons having these experiences. It seemed appropriate to analyse some of the features in broad groups, although we also examined subdivisions within the groups. For example, many patients reported an experience of perceiving a strong light. For some, the light was diffuse and circumambient, for others it seemed to be at the end of a tunnel, and for still others it seemed to emanate from persons they saw during the experience. These and other experiences of light were categorised as "enhanced light". Similarly several types of altered cognitive functions were categorised as "enhanced cognitive function".

We examined the following features:

1. Enhanced perception of light.
2. Experience of being in a tunnel.
3. Enhanced cognitive function (included seven variables: speed, logic, and clarity of thought, overall visual and auditory clarity, vividness of colours, and control of cognition, all measured by self-reported ratings on the questionnaire).
4. Emotions (of 10 emotions checked on a bi-polar emotion checklist, categories of less than five and more than five positive or negative emotions).
5. Belief that one had left one's body (with and without perception of one's physical body from a different physical position).
6. Memories of earlier events in life.
7. Belief that one was near death or had died.

Data analyses

The data were analysed with cross-tabulations and χ^2 tests. Data were more complete for some features than for others.

Results

Enhanced light. 21 (75%) of the 28 patients who had been near death reported experiencing enhanced light, whereas only 12 (40%) of those judged not to have been near death did so. The difference was highly significant ($\chi^2 = 7.23$, $p < 0.007$). (fig 1A).

Experience of being in a tunnel. Reports of being in a tunnel have figured prominently in anecdotal and popular accounts of these cases, but only 21 (46%) of 46 patients reported this experience; 12 had been near death and 9 had not been (the difference was not significant). However, the tunnel experience correlated significantly with the feature of

enhanced light—19 (70%) of 27 patients reporting enhanced light had the tunnel experience, whereas 17 (90%) of 19 patients who did not undergo a tunnel experience did not report light ($\chi^2 = 16.1$, $p < 0.000$).

Enhanced cognitive function. As mentioned, the seven variables concerning cognitive function during NDE were combined into one measure and this measure was broken into categories of no enhancement, one to three functions enhanced, and four to seven functions enhanced. Of the 16 patients who reported no enhancement of cognitive function, 13 (81%) were not near death, whereas 62% of the patients reporting enhancement were judged to be near death ($\chi^2 = 8.088$, $p < 0.018$) (fig 1B).

The experience of enhanced light correlated with that of enhanced cognitive function. 25 (86%) of 29 patients who experienced enhanced light also reported enhanced cognitive function, whereas only 9 (43%) of 21 patients who did not experience enhanced light reported enhanced cognitive function. 12 (75%) of the 16 patients who reported no enhancement also reported no light ($\chi^2 = 12.535$, $p < 0.002$). (fig 2A.)

Diminished cognitive function. Although 62% of the subjects reported that they did not experience any decrease in cognitive function, 20% reported one function diminished, 8% reported two functions diminished, 10% reported three or four functions diminished, and no subject reported five or more functions diminished. The predominant cognitive function reported diminished was control over thoughts, with 25% reporting less control over thoughts. It should be noted that the experience of less control was not necessarily experienced as a lessening of function. In one subject's words "It seemed like everything was unfolding just as it should".

Positive emotions. Positive emotions of some degree occurred in most (81%) patients, and so the report of positive emotions did not discriminate between those near death and those not near death. The report of positive emotion was used to split the subjects into those reporting less than five positive emotions and those reporting more than five positive emotions. The proportion reporting more than five positive emotions was greater among those near

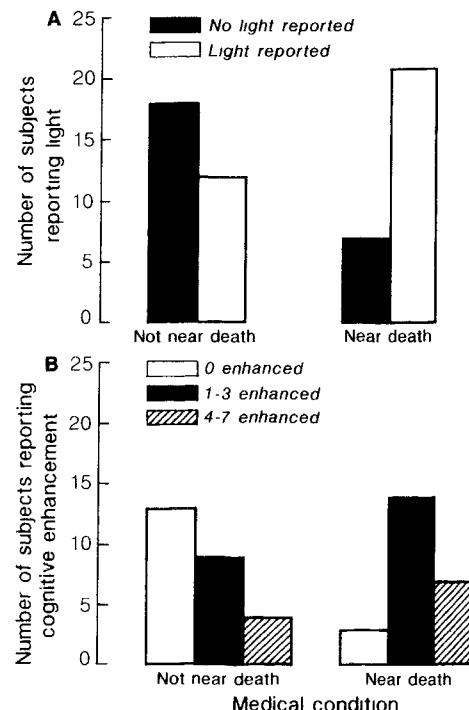


Fig 1—Relation between medical condition and report of (A) bright light or (B) degree of cognitive enhancement during NDE.

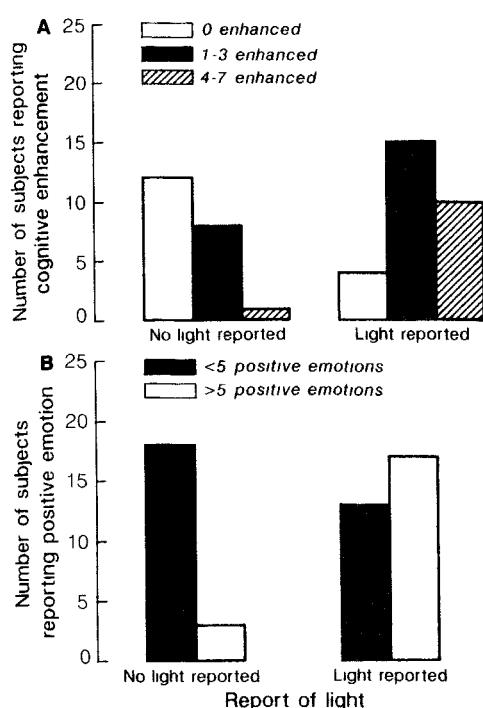


Fig 2—Relation between report of light and report of (A) degree of cognitive enhancement or (B) positive emotion during NDE.

death than among those not near death, but this difference was not significant. The report of many positive emotions (more than five), however, was significantly related to the experience of enhanced light. Among 30 patients reporting the experience of enhanced light, 17 (57%) said they had experienced more than five positive emotions during the experience, whereas only 3 (14%) of 21 patients who did not report experiencing enhanced light said they had had more than five positive emotions ($\chi^2 = 9.31$, $p < 0.002$). (fig 2B.)

Negative emotions. Although 75% of the subjects reported an absence of negative emotion, 12% reported at least one negative emotion, 8% reported two negative emotions, 6% reported three or four negative emotions, and none reported five or more negative emotions. The predominant "negative" emotion was indifference, which was opposed to curiosity on the emotion checklist we employed.

Belief in having left the body and seeing it from above. The two groups showed no difference in this belief. 68% of both groups reported this belief.

Memories of earlier events in life. The two groups also did not differ in proportions reporting memories of earlier events in the subject's life (sometimes called "life review" or "panoramic memory"). 6 (27%) of 22 patients near death and 4 (17%) of 23 patients not near death reported some such memories. Most patients reported only a few memories; only 2 (9%) patients near death and 2 (9%) patients not near death reported a review or replay of his or her whole life.

Belief that death was imminent or had occurred. 24 (96%) out of 25 patients near death and 21 (84%) of 25 patients not near death said that they were near death or dead at the time ($p = \text{NS}$).

Discussion

The results we obtained, far from refuting any of the three principal interpretations of NDEs (transcendental, physiological, and psychological), offer, in different ways, some support for each of them.

The psychological interpretation receives support from the evidence that persons who are not near death (from

illness or injury) may have experiences that in all respects resemble those of persons who are near death. It would seem that among those who were not near death their experiences were precipitated by their belief that they were. In this respect the experiences resemble those that sometimes occur in the absence of any physical injury whatever, as when an alpine climber falls, thinks he will land on rocks, but instead falls into snow and survives.⁵

Our data also may give some support to the physiological interpretation of the experiences, because certain features occurred significantly more often among the patients who were near death than among those who were not. This was true of the experiences of enhanced light and of enhanced cognitive powers. The experience of enhanced light seemed to be the most striking feature, and it correlated not only with enhanced cognitive powers but also with strongly positive emotions during the experience.

Finally, our data contribute one item relevant to the transcendental interpretation. The hypothesis that the brain is necessary for mental functioning would lead us to expect that, as brain function becomes disturbed, and perhaps in some cases diminishes, a matching impairment of cognitive function would occur. Instead, we found that patients who were actually near death reported enhanced cognitive function at that time.

REFERENCES

1. Plato *The republic*. London: JM Dent, 1937; **10**: 318-25.
2. Bede. *Ecclesiastical history of the English nation*. London: JM Dent, 1910: 132-35.
3. De Quincey T. *Confessions of an English opium-eater*. London: Oxford University Press, 1902; 252-53.
4. Beaufort F. (London) *Daily News* Jan 15, 1858. (Also in Friendly A. Beaufort of the Admiralty: the life of Sir Francis Beaufort 1774-1857. London: Hutchinson, 1977: 47-49.)
5. Heim A. *Notizenüber den Tod durch Absturz*. *Jahrbuch des schweizer Alpenclub* 1892; **27**: 327-37.
6. Myers FWH. On indications of continued terrene knowledge on the part of phantasms of the dead. *Proc Society Psychical Res* 1892; **8**: 170-252. (Case of Dr. A.S. Wiltse)
7. Geddes A. A voice from the grandstand. *Edin Med J* 1937; **44**: 365-84.
8. Judson IR, Wiltshaw E. A near-death experience. *Lancet* 1983 **ii**: 561-62.
9. Greysen B, Stevenson I. The phenomenology of near-death experiences. *Am J Psychiatry* 1980; **137**: 1193-96.
10. Sabom M. *Recollections of death: a medical investigation*. New York: Harper Row, 1982.
11. Ring K. *Life at death: a scientific investigation of the near-death experience*. New York: Coward, McCann, and Geoghegan, 1980.
12. Blacher RS. To sleep, perchance to dream ... *JAMA* 1979; **242**: 2291.
13. Rodin EA. The reality of death experiences: A personal perspective. *J Nerv Ment Dis* 1980; **168**: 259-63.
14. Carr D. Pathophysiology of stress-induced limbic lobe dysfunction: a hypothesis for NDEs. *Anabiosis* 1982; **2**: 75-89.
15. Jansen K. Near death experience and the NMDA receptor. *Br Med J* 1989; **1**: 1708.
16. Morse M, Venecia D, Milstein J. Near-death experiences: A neurophysiological explanatory model. *J Near-Death Studies* 1989; **8**: 45-53.
17. Noyes R, Kletti R. Depersonalization in the face of life-threatening danger: an interpretation. *Omega* 1976; **7**: 103-14.
18. Appleby L. Near death experience; Analogous to other stress induced psychological phenomena. *Br Med J* 1989; **298**: 976-77.
19. Roberts G, Owen J. The near-death experience. *Br J Psychiatry* 1988; **153**: 607-17.
20. Morse M, Conner D, Tyler D. Near-death experiences in a pediatric population. *Am J Dis Child* 1985; **139**: 595-600.
21. Morse M, Castillo P, Venecia D, et al. Childhood near-death experiences. *Am J Dis Child* 1986; **140**: 1110-14.
22. Gabbard GO, Twemlow SW, Jones FC. Do "near death experiences" occur only near death? *J Nerv Ment Dis* 1981; **169**: 374-77.
23. Walker FO. A nowhere near-death experience: Heavenly choirs interrupt myelography. *JAMA* 1989; **261**: 3245-46.
24. Stevenson I, Cook EW, McClean-Rice N. Are persons reporting "near-death experiences" really near death? A study of medical records. *Omega* 1989-90; **20**: 45-54.