LETTER TO THE EDITOR

Some Basic Problems with the Term "Near-Death Experience"

To the Editor:

The term near-death experience (NDE) has several semantic criteria for its application. Some of them are experiential, such as an experience of a tunnel and/or an out-of-body experience (OBE). Other criteria for the term concern its connection with clinical death, as noted in the term itself. There are problems in regard to both types of criteria.

In regard to the experiential criteria for NDE, the meaning of the term is unclear as to how many of the criteria must be satisfied. The meaning is also indeterminate as to which experiences are most important, either because they occur more frequently or because they are at the core of the experience.

Most of the criteria seldom appear; for example, an experience of scenes occurs in only 15% of cases (Fenwick & Fenwick, 1997). In addition, the experiential criteria may be present without an NDE and, as a matter of fact, occur more often with other causes such as drug abuse (Corazza & Schifano, 2010), anaesthesiology, remedies, certain personality traits, or diseases of the brain. Also in regard to the experiential criteria, it is unclear whether the experiences survivors reported recalling from their resuscitations were actually generated at clinical death or later during the convalescence of brain function.

In regard to the criterion that NDEs should be connected with clinical death, there are a number of problems. As just mentioned above, the experiential criteria may be present without linkage to clinical death, and moreover, clinical death and resuscitation occur most often without such experiences. Furthermore, medical surveys of the normal population point out a higher proportion of healthy people who recount NDEs than occurs in clinically dead and resuscitated persons (Engmann, 2011).

Another question is whether certain parts of the brain have a higher susceptibility to malfunction than others, a so-called pathoclisis (Engmann, 2008). A recent study supports that likelihood of NDEs seem to be connected to the extent of alteration of the brain (Klemenc-Ketis, Kersnik, & Grmec, 2010).

Experiences of near-death phenomena are caused not only by neuro-

psychological factors but also by the cultural and religious background of the experiencer. Some people count OBEs that occur in some near-death episodes as proof that mind exists independently from body. Such a parallelism, however, runs contrary to standard explanations not only for mental diseases, such as Alzheimer's or Pick's disease, but also for the causation of OBEs by drug abuse or temporal lobe seizures.

In conclusion, the term near-death experience is used to cover a wide range of phenomena. On the one hand, its criteria are not specific and, moreover, are weakly related to the term itself. On the other hand, even in cases in which clinical death and resuscitation are present, it is unclear how the strange experiences are related to clinical death. I conclude that the term near-death experience is semantically problematical and fails to provide a scientific classification or a diagnosis.

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LETTER TO THE EDITOR

Response to "Some Basic Problems with the Term 'Near-Death Experience'"

To the Editor:

In his Letter to the Editor of this *Journal* (this issue), Birk Engmann noted that the criteria for the term "near-death experience" (NDE) popularly include both experiential features, such as an out-of-body experience, as well as a connection to clinical death. He wrote that the experiential criteria are problematic because (1) it is unclear how many of them must be present, (2) it is unclear which (if any) are most important, (3) some of these features are in fact uncommon in NDEs, and (4) others of these features may be common in experiences other than NDEs. He also found the connection to clinical death problematic because (1) the experiential features can occur without clinical death, (2) the experiential features usually do not accompany clinical death, and (3) healthy people report more NDEs than do people who were clinically dead.

Pointing out semantic problems, as Engmann did, can be useful to a developing field in refining scholars' and researchers' questions and understanding. However, rather than suggest some helpful clarification of these criteria, Engmann instead implied that these problems render the concept of NDEs scientifically meaningless. To the contrary, the shortcomings in the criteria for NDE that Engmann mentioned—and, indeed, many other semantic problems—have been productively discussed for the past three decades in an extensive peer-reviewed literature examining the implications of varying definitions of and criteria for NDEs (e.g., Bates & Stanley, 1985; Greyson, 1998; Hobson, 1978; Smith, 1991).

Engmann further confused the *definition* of an NDE with the *criteria* for identifying an NDE. The general, abstract definition and the specific operational criteria are two different constructs that serve very different purposes. I have previously reviewed the uses and varying utility of definitions of NDEs, criteria for NDEs, and empirical tests of NDEs in studying these phenomena (Greyson, 1999). I believe that by failing to differentiate between definitions and criteria, Engmann has clouded rather than clarified the issues.

Engmann further noted that different parts of the brain may have

varying susceptibility to malfunction than others, suggesting that NDEs are caused by brain malfunction. But the likelihood that some parts of the brain may have varying susceptibility to malfunction reveals nothing about possible neurological causes of NDEs. It would be surprising indeed if NDEs were *not* associated with brain malfunction, because the brain necessarily malfunctions as the body approaches death; but there is no scientific basis for attributing the *cause* of NDEs to such brain malfunction. Although Engmann was correct in noting that many NDEs occur in people without documented clinical death, a large number of well-substantiated cases involve patients who *were* indeed clinically dead. In fact, the professional literature contains hundreds of published cases of NDEs occurring under conditions such as cardiac arrest and deep anesthesia in which standard neurophysiology models of the brain rule out conscious experience of *any sort*, let alone the vivid and complex thinking, perceptions, and memory typical of NDEs (Kelly, Greyson, & Kelly, 2007).

Engmann cited a study by Zalika Klemenc-Ketis and colleagues (Klemenc-Ketis, Kersnik, & Grmec, 2010) as supporting a link between NDEs and brain alterations. That small study found NDEs to be associated with high carbon dioxide levels—which was surprising, because larger studies both by Michael Sabom (1982) and by Sam Parnia and colleagues (2001) found *no* association of NDEs with carbon dioxide levels. However, Klemenc-Ketis and colleagues tested *several* physiological variables, of which two were associated with NDEs. If they had corrected their statistics for multiple simultaneous univariate tests, as is usually done in medical research, then neither of those differences would have been significant. Thus, the odds that the link between carbon dioxide and NDEs in their study occurred just by chance were greater than most medical journals require for reporting results. Moreover, the meaning of this possible association, if in fact it exists, is far from clear. High carbon dioxide levels result from better cardiac output and perfusion pressure, which would reduce the amnesia usually seen in cardiac arrest. Therefore, any association between carbon dioxide levels and reports of NDEs might show only that patients who can remember more of what happened during their cardiac arrests also can better recall, and consequently report more, NDEs.

Engmann concluded that NDEs are "caused" not only by neuropsychology factors but also by cultural and religious variables. There is certainly evidence that neuropsychology, culture, and religion *influence* experiencers' perception and understanding of their NDEs, but

there is no evidence that those factors *cause* the experience. Engmann claimed that out-of-body experiences (OBEs) are caused by drug abuse or temporal lobe seizures. Temporal lobe seizures also cause hallucinations of music, but that fact does not substantiate the claim that everyone who hears music is having a seizure-induced hallucination. Likewise, the fact that drugs or seizures can induce hallucinations of being out of the body does not imply that drugs or seizures are the cause of all OBEs. In fact, the induced hallucinations of OBEs are quite different from NDEs and other spontaneous OBEs in many ways (Greyson, Parnia, & Fenwick, 2008), not least of which being that near-death-related OBEs include accurate perceptions from an extracorporeal visual perspective in more than 90% of documented cases (Holden, 2009), whereas induced hallucinations do not.

Engmann included a parenthetical comment that the idea of a mind existing independent of a brain should be dismissed because it runs contrary to standard explanations for brain disorders like Alzheimer's disease. However, it is now clear that the "standard" brain-mind identity model does not in fact explain disorders like Alzheimer's disease in which patients can paradoxically recover mental function as the brain deteriorates, a phenomenon known as "terminal lucidity" (Nahm & Greyson, 2009).

Engmann is correct that the criteria for NDEs are imprecise. However, if the field of near-death studies is to advance, that shortcoming is not a reason to dismiss the phenomenon but, rather, is a justification for further research to refine the criteria.

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LETTER TO THE EDITOR

On Demographic Research into Near-Death Experiences

To the Editor:

Even after decades of research into near-death experiences (NDEs), there is still no consensus on either their definition or their prevalence—"how many people are likely to have one or more NDEs over the course of their lifetimes" (Zingrone & Alvarado, 2009, p. 30; also Greyson 1998, 1999). Often in publications, a prevalence of 5% is mentioned, which is based on a questionable Gallup poll the results of which were published in the well-known book *Adventures in Immortality* (1982) by George Gallup, Jr. and William Proctor. Also the NDE label is attached to experiences that were not life-threatening (e.g., Gallup, 1982, p. 201; Perera, Padmasekara, & Belanti, 2005, pp. 115, 116).

Whilst the aforementioned 5% cannot literally be found in *Adventures in Immortality,* it appears that subsequent authors mentioning this result have copied it from other publications rather than from studying the source itself. Those who do study the source encounter a text replete with anecdotes, religiously colored considerations, and a relatively limited illucidation as well as discussion of the poll material, at the end of which readers are referred to an appendix containing the statistical results of the poll questionnaire itself.

The poll questionnaire aims at unusual experiences on the verge of death (*verge-of-death experiences*; Gallup & Proctor, 1982, pp. 6, 200). Although it does not query specifically about NDEs, the term "NDE" is used in the text of the book. In addition to this change of terminology, the questionnaire itself is somewhat problematic, as the following question illustrates: "Have you, yourself, ever been on the verge of death or had a 'close call' which involved any unusual experience at that time?" (p. 200). Fifteen per cent of respondents answered "yes." Both parts of this double question are posed too broadly, leaving respondents to determine for themselves the meaning of "on the verge of death" and "unusual experience." Furthermore, from responses to the next question, it appears that 60% of the 15% of respondents who answered in the affirmative were referring to verge-of-death circumstances such as serious illness or injury or to other factors but were

not referring to actual NDE features. The responses referring to actual NDE features yield a total far below 15% of respondents.

According to the text, projection of the results onto the total U.S. adult population of citizens aged 18 years and older yields that 23 million people had a "verge-of-death" or "temporary death" experience, of which 8 million people also went through a "mystical encounter" (p. 6). The first number may be based on the above-mentioned 15% assuming that in 1980 the U.S. adult population was approximately 150 million: 15% of 150 million equals roughly 23 million. The second number seems to have been derived from the table with the description of the verge-of-death experience in elements, largely NDE elements, but after closer inspection it appears impossible to derive 8 million from the table data. Due to the lack of sufficient data in *Adventures in Immortality,* one must make assumptions in order to calculate prevalence. Depending on those assumptions, reasoning and calculation can yield the value of 5%: 8 million with "mystical encounter" out of 150 million roughly equals 5%. In any case, this calculation has been done at least once, and it seems subsequently to have been copied by other authors. The oldest reference we found is Kenneth Ring's (1984).

Furthermore, numerous professional literature and website references to a Gallup poll of 1992 indicate that authors are not exercising appropriate meticulousness in their research. Our inquiry at the Gallup office brought to light that the 1980 poll presented in *Adventures in Immortality* (1982) was actually never replicated. Probably someone erred by typing not 1982 but 1992, a year that then started to lead a life of its own and thereby engendered a belief that Gallup had conducted two similar polls. In actuality, in November of 1990, the Gallup Organization conducted a different poll wherein they repeated the question, "Have you, yourself, ever been on the verge of death or had a 'close call' which involved any unusual experience at that time?", to which 12% of respondents answered "yes"—compared to the 1980 poll result of 15% per cent. The 1990 result was never published (Judith Keneman, personal communication, November 24, 2008).

In addition to researchers being justified in questioning the validity of the Gallup poll results with regard to the U.S. population, they should also be prudent with regard to applying those results to populations outside the U.S. *Adventures in Immortality* showed that the average U.S. citizen is more religious than the average western European citizen. In further contrast to western Europeans, a large majority of U.S. citizens also believes in hell and the devil and does not question the concept of an afterlife. This cultural difference is con-

firmed by a recent study of the Social and Cultural Planning Office of the Netherlands (Becker & Hart, 2006). How these beliefs of U.S. citizens might influence their poll responses should be studied more closely. In any case, researchers cannot validly assume that U.S. poll results necessarily apply to non-U.S. populations.

Some studies conducted in other Western countries have contributed in only a limited way to resolving the question of NDE prevalence. In their study, Mahendra Perera, Gayan Padmasekara, and John Belanti (2005) stated that the Gallup poll showed that 15% of the U.S. population had had an NDE (pp. 109, 110) and used a variant on Gallup and Proctor's (1982) broad question: "At any time in your life have you ever felt that you were close to the point of dying?" (Perera et al., 2005, pp. 112, 115). Those who answered "yes" and mentioned at least two NDE elements were included as near-death experiencers (NDErs). This methodology led to the observation that 9% of interviewees had had an NDE. Here again, the broad phrasing of the question as well as the broad definition of NDE yielded a result of questionable validity. For example, it is possible that a drug user who had self-administered a near-lethal overdose that included the drug effect of feeling peaceful and hearing hallucinatory sounds would be counted as an NDEr even though most NDE researchers would not consider that experience an NDE.

Hubert Knoblauch, Ina Schmied, and Bernt Schnettler (2001) had what we consider a more thorough approach. They interviewed about equal numbers of voting-eligible people from former East and West Germany—in total 2,044 interviewees—about extraordinary personal experiences they had had in connection with death. The researchers included foreboding that someone would die that, in hindsight, turned out to be correct (premonition of death); a dying person describing the perception of another world (deathbed vision); peculiar phenomena surrounding a death (paranormal phenomena); and the intensive perception—not a hallucination or dream—of being about to die or being already dead (NDE).

Nevertheless, in our opinion the latter question reflects a definition of NDE, found also in other studies, that was too broad because it did not include reference to an objective life threat. Using this broad definition, the authors found 4% of interviewees reported one or more NDEs, with approximately equal numbers of men and women and of East and West Germans (Knoblauch, Schmied, & Schnettler, 2001). Fortunately, these researchers asked further questions about NDE circumstances. About half of NDErs indicated they had been in a life-

threatening situation, and 6% knew for certain they had been clinically dead. Thus, a more precise definition of NDE that included the condition of a life-threatening situation yielded a prevalence of 2%.

Of course, other demographic studies into the prevalence of NDEs have been carried out. Nevertheless, the above arguments suffice to show that the absence of a generally accepted definition of NDE requires researchers to carefully define what they consider to be an NDE.

However, we are of the opinion that it would be much better if a definition of NDE would be generally accepted wherein researchers could be reasonably certain their NDE respondents had actually been close to death. To realize this goal, the International Association for Near-Death Studies (IANDS) not only is the obvious platform but, as we see it, also should be the driving force.

Regarding clear conclusions about the prevalence of NDEs, when all is said and done, researchers come up empty-handed. The Gallup poll is old and questionable, and we believe the figures in it regarding the NDE may be better forgotten. Later studies are also based on unclear or too broad definitions. Only the work of Knoblauch et al. (2001) has provided arguably valid results for the studied population and similar others, thanks to methodology involving thorough structure and sufficient in-depth probing of respondents.

This brings us to arguing for an initiating and steering role of IANDS as regards the execution of a new demographic study amongst various populations that is based on a previously created and generally accepted definition of NDE.

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LETTER TO THE EDITOR

Why Do Near-death Experiences Seem So Real?

To the Editor:

I've recently been pondering the question of why so many people who have near-death experiences (NDEs) consider their experiences to have been "real." Physician Jeffrey Long (Long & Perry, 2011) surveyed 613 NDErs online and found that 95.8% believed that their NDEs were "definitely real." Furthermore, "not one NDEr said that the experience they had was 'definitely not real'" (p. 52). So, out of 613, a whopping 587 said "definitely real," and 0 said "definitely not real."

At first, it seems patently obvious that researchers and others of us interested in critical assessment of evidence can't just take NDErs' word for it. We clearly need not merely to trust the subjective impression of the experiencers themselves but need rather to look to hard evidence.

And yet, that assumption of the scientific method skims over a very important question: *Why* are NDErs' subjective impressions so overwhelmingly skewed in the direction of reality? What convinces them their NDEs were real? There is clearly something about NDEs that both convinces people they are real and makes them distinguishable from experiences generally regarded as unreal. Researcher Rene Jorgensen (2010b) found that 93% of his 16 mostly-American NDEr survey respondents said their experience was very different from a dream or hallucination. I've also heard NDErs say that their experiences were different from psychedelic drug experiences they had had.

Actually, their claim often goes even further. Although in our eyes the question is whether NDEs are as real as this world, many NDErs say that what they experienced was *more* real than this world. For instance, Therese B in her account on the website of the Near Death Experience Research Foundation (www.nderf.org) said, "I believe in God now and in an existence that is much more real, wonderful and self evident than the life we live here." Notice that she said "much more real" *and* much more "self evident." This point brings us back to my initial question: What is it about NDEs that makes them seem to be more than dreams and hallucinations and to be even more real than the material world of everyday life?

I asked psychiatrist Bruce Greyson, one of the founders of the field of near-death studies, if any research has been done on why NDErs are virtually universally convinced of the reality of their experiences. He didn't mention any research that had been done, but he did say, "It *is* an intriguing question, though, and perhaps one that deserves some thought from people who can think through things like that" (B. Greyson, personal communication, September 26, 2011), He suggested I write this letter to the Editor of the *Journal of Near-Death Studies*.

Not having had an NDE myself, all I have to go by are the accounts of those who have. But in reading and watching those accounts, I notice a number of things that possibly have bearing on this question of why NDErs are so convinced.

First, NDE narratives sound quite coherent. Even though NDErs often say that the experience is difficult to relate in sequence because it was all simultaneous, the sequence as they tell it sounds logically coherent. This coherence stands in direct contrast to dreams with their illogical changes and bizarre disconnects. In NDEs, however, the flow of events seems to make sense. Recently, while watching a woman share her NDE and move back and forth between supposed out-of-body events and her in-the-body drama, it struck me that the two very different kinds of events flowed seamlessly together as one narrative. Just as she sounded like a sober, factual reporter of the medical details, so she also sounded like a sober, factual reporter of her out-of-body adventures. Aside from the point that one side of her experience was physical and medically verifiable and the other side was non-physical and mostly unverifiable, the two kinds of events credibly meshed as a single story of what happened to one person shuttling between material and non-material realms.

Second, one of the outstanding characteristics of NDEs seems to be the intensification of all aspects of the mind. NDErs typically describe their NDE faculties of awareness, thought, feeling, sensation, and perception to be expanded in scope, intensity, and speed—to a truly incredible degree. Some NDErs report having seen with 360-degree spherical vision. Others say they instantly knew the number of hairs on a head being viewed. Others claim to have relived every second of an entire lifetime, from several perspectives at once and in exquisite detail, including what others experienced in those events—all *simultaneously*. Clearly, these descriptions indicate an almost unimaginably expanded consciousness.

I can't help but think that these features contribute to the sense that what is being experienced is real. In such a state, it would seem

natural to think the following: "If being in this environment means that I am *more* in every way, then that environment is itself probably more than the earthly environment—more real. And if my heightened faculties assess that environment as real, then I can probably trust those faculties even more than I trust my earthly faculties when they tell me the earthly environment is real."

Third, and very closely related to the second point, is the sheer power of the experience. In this reference, I am again drawing on the research of Rene Jorgensen. His presentation at the 2010 IANDS conference in Denver (which I think is what got me thinking about this whole matter in the first place) is worth quoting from at length:

> I think this is a part that we sometimes either under-report or it's something that, that people who don't have the experience don't quite understand. Because they will say, well, it's a dream, it's a hallucination, and the experiencer will say, no, it's different. But why is it different? And I think this is one of the reasons, that it is the power, the sensation of the experience is so overwhelming that, that it's just different. It compares to nothing else.
>
> And here we can see that the 25%, they said that the sensation was 50–100 times stronger. And 56% they actually said—this was pretty high—a thousand times stronger or beyond. They actually, some said, "It's beyond my ability to describe the power of the sensation."
>
> And I think it was also, two years ago, it was Kimberly Sharp. She explained this story of going to Niagara Falls, where she went behind the falls, and she explained the rush, the power of millions of gallons of water rushing down in the [makes sound of gushing water], the power of that. She said, "That's what it's like to be in the light."
>
> And I think this is exactly what I've tried to demonstrate here through data, that more than 50%, they actually say that this powerful sensation of *being* on the other side, *being* in the light, is just beyond our imagination. And that's really for me a factor that tells us that that's not a dream. A hallucination is not like this. It doesn't have that power. It doesn't have that sense of reality that we find in the near-death experience that's here reflected through this data.
>
> And then, this was really the one here: I put the question: The power of my experience, which is beyond anything I've ever experienced on earth, made me absolutely sure that my experience was real. And here, practically everybody, 93% agree. And that was basically the point I'm trying to describe here, that that is really the *power* of the experience in my view is a convincing factor that leaves no room for doubt.
>
> Whereas a dream, we wake up: Was it real? No, this was dream, we know. There can be a hallucination; there is a little bit doubt after. But the power here is something different. (Jorgensen, 2010a; emphases in original work)

Fourth, a factor that must contribute to the conviction of NDErs is when they experience something while subjectively out of their bodies that is later physically verified. As a hypothetical, imagine NDErs having an overwhelmingly powerful experience, as Jorgensen documented, yet perceiving all sorts of physical details that later proved totally incorrect. Would the conviction of those NDErs remain intact under those circumstances? I doubt it. Yet that, of course, is not what I've seen in NDE accounts. I've seen an impressive number of accounts in which the NDEr claims to have later verified a number of details he or she saw while out of body (Holden, 2009). This verification must contribute to the sense that the experience was real.

Fifth, I suspect that a significant part of the conviction is a sense of being in more direct than normal contact with the supposed afterlife environment. In normal life, directness of contact is a major factor in how much people trust their perceptions. To read a story is less convincing than to watch a film, which in turn is less convincing than to see with one's own eyes. As the directness of contact increases, so does trust in what one perceives. In this world, however, that directness is always limited. People experience the environment through a double filter—the filter of the senses compounded by the filter of interpretations. In many NDEs, however, one gets the sense that this filtering is at least reduced, so that contact is genuinely more direct. One thinks, for instance, of the common claim that communication on the "other side" is done telepathically rather than by speech, so that misunderstandings are largely or completely eliminated. Here, then, is a claim of greater directness that appears to result in greater reality contact. Then there are those cases in which an NDEr claims to have experienced unmediated union with the divine, which, if true, would mean that the normal filtering is not just reduced but is gone. Perhaps this notion of more direct contact helps explain the earlier comment by the NDEr about the NDE environment being much more self-evident than this world.

Sixth is what I will call the enduring clarity and transformative power of the long-term impression the NDE leaves. The great majority of NDErs are convinced of the NDE's reality not only within the experience but also over the long term. And that long-term conviction appears to be facilitated by the exceptionally stable memory of the experience—what I referred to earlier as enduring clarity, a phenomenon that Bruce Greyson (2006) has established empirically—as well as by the life-changing effects of the experience. This point—really, two points in one—comes from NDE experiencer and researcher Bar-

bara Whitfield. I had asked for feedback on this letter at an online social network that includes many NDErs (nhneneardeath.ning.com), and Barbara responded:

> My NDE is real because of the way I suddenly felt after and that can be "proven" by all the changes that I have made over the years and the way I live my life now - totally different than who I was before.
>
> "By their fruits we will know them!" Or something like that. The "fruits" are incredible. I was an atheist before and now I **know** because I experienced it back then and it continues here now. . . .
>
> And, all of us are clear and consistent in our minds and memories. Our authentic experiences don't change over time. Bruce Greyson went back years later to the NDErs who were subjects in his research pool and asked them to explain their memory of it again and they were all still consistently the same. The only thing that changed for me was finding more words and ways to explain IT but the memory is the same.

Seventh, there may well be some indefinable sense of realness that does not fall under the previous six headings, some subjective sense that, at least for the present, can't be nailed down. Along these lines, Bruce Greyson (personal communication, September 26, 2011) told me this story:

> I once interviewed a schizophrenic man who had jumped off the roof of a building because he heard the devil's voice telling him he deserved to die and should kill himself by jumping. He said that, while falling through the air, he heard the voice of God telling him that he would be all right and did not need to die. Obviously, he did survive, though with some broken bones. When I interviewed him a couple of days after his jump, he regarded the devil's voice as a schizophrenic hallucination, but he insisted that God's voice was real. I pointed out to him that, from the perspective of a third party like myself, both the devil's voice and God's were voices only he heard, and therefore I had no way to tell they weren't both hallucinations; and I asked him how he made the distinction. He could say only that God's voice was more real to him than my voice was, in the same way that my voice was more real to him than the devil's was. I don't know how we can objectify that. We routinely regard our memories of yesterday's events as real, but our memories of last night's dreams as unreal. But is there any infallible criterion for making that distinction other than that they somehow seem different to us?

All of this to me serves to highlight the wide gulf that lies between NDErs and the rest of us humans. It must be very strange to have experienced something that they are convinced was absolutely real

yet that others remain skeptical about. The NDErs I consulted on that social network supplied some vivid metaphors regarding this gulf. Rudi Rudenski said, "If you have been to Colorado, no one can tell you Colorado does not exist." Anthony Kimbrough said, "They don't 'seem' real, they are," but then explained the problem in conveying this difference to others: "Say you go fishing and you say you caught a 6 ft catfish . . . but it got away. You can show me the broken line. Explain the feeling of catching it followed by the feeling of it getting away. The receipt of renting the boat. . . . [But] There is really no way of making me believe that without you hav[ing] hard physical evidence."

My list is obviously just an initial stab at trying to isolate some of the factors that contribute to that 95.8 percentage that Jeffrey Long found. Rene Jorgensen has begun to investigate this question, and perhaps other researchers have, too. I hope that further research will be done. The question strikes me as extremely important. It seems to me that it has the potential to bridge some of that gulf between NDErs and the rest of us. They are overwhelmingly convinced that their experience was real. If we can gain some genuine understanding of why, then perhaps that will help us decide how much we can believe them.

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LETTER TO THE EDITOR

Almost Brainless—Yet Lucid and Intelligent: Implications for Understanding NDEs and Consciousness

To the Editor:

In 2010, Skeptiko website host Alex Tsakiris had a long interview with physician Sam Parnia about near-death experiences (NDEs) in general and Parnia's already-famous AWARE study in particular (http://www.skeptiko.com/sam-parnia-aware-doomed-to-fai/). Much to the chagrin of Tsakiris and many respondents, Parnia was pretty cautious in his answers to Tsakiris's questions and remarks. Tsakiris even voiced the suspicion that Parnia had become a skeptic whose aim it was and is to downplay the importance of NDEs.

In order to defend his position and the how and why of the AWARE study, Parnia seemed to insist that AWARE is not mainly about out-of-body experiences (OBEs)—and in conjunction with that, NDEs. He gave the impression that these phenomena are less relevant than the whole dying processes themselves, because to know more about them could and should be beneficial for medical science.

Fair enough! But for us onlookers, the main thing is the question whether this study will unearth the serious possibility of a consciousness that not only operates separately from the brain but that also can do verifiable observations by itself in a way materialistic scientists cannot explain. And then I have to agree with some other contributors on the Skeptiko site who say that it is somewhat strange that after so many years of having worked with NDErs—who indeed came back with detailed observations that could be verified—Parnia keeps open the option that the whole OBE/NDE phenomenon is an illusion after all.

In this regard, let me refer to Janice Holden's (2009) marvelous chapter, "Veridical Perception in Near-Death Experiences" in *The Handbook of Near-Death Experiences: Thirty Years of Investigation.* Therein she gave plenty of examples of highly-detailed veridical NDEs, that is, cases of reported perceptions during NDEs that should not have been possible, considering the position and condition of the

NDEr's body, yet later were checked out and showed an accuracy of over 95%. What more "evidence" does one need?

It seems, however, that Parnia is caught up in what I call the "terror of repeatable evidence," by which I mean the "rule" of science that a phenomenon is only true if it can reproduced over and over again with—let me guess—80% accuracy. It is the perpetual issue of "anecdotes" versus results gained from experiments. Skeptics are at the forefront by constantly hammering at the "anecdote thing," as if an anecdote can never be true. However, when there are enough "anecdotes" all telling essentially the same thing, then in the course of time they cease to be anecdotes: They become accumulated evidence. That is how, at long last, the existence of NDEs had been accepted, also by hardnosed skeptics—the difference being that such skeptics continue to maintain that NDEs are "nothing but a trick of the brain"—even if the great preponderance of evidence goes against that idea. And there is plenty of such evidence, as anyone knows who has delved deeply enough into everything that has been gathered about OBE/NDE.

The problem is that most (pseudo-)skeptics simply refuse to look beyond their own preexisting biases. They won't even consider the possibility that consciousness is NOT a product of the brain—and that there are abundant indications that brain and consciousness are indeed separate entities. Let me explain—and take notice that this has relevance to Parnia's AWARE Study!

"Is Your Brain Really Necessary?"

Not many people have heard of an article, authored by Roger Lewin, that appeared in a 1980 issue of *Science*, one of the most reputable science journals in the world, and which article was quite provocatively titled, "Is Your Brain Really Necessary?" As neurologist John Lorber explained, it was only by this provocative title that Lewin could get the attention he wanted. Lorber's article appeared in 1983 in a German medical book, and it all boiled down to an extremely strange phenomenon: There are people in this world who have virtually no brain yet are healthy, have normal to high intelligence, and have normal social behavior. Lorber investigated more than 600 people who were affected by *hydrocephalus*, that is, having cerebrospinal fluid where there should be brain. Not surprisingly the incidence of very low intelligence in these people is high, yet people with hydrocephalus can display all degrees of intelligence—a few even quite high.

And so it turned out to be: Amongst those 600 were 8 whose IQ

was 100 or even more (Lorber, 1983). In particular, Lorber cited the story of a student of mathematics who had a global IQ of 126 with a verbal IQ even reaching 143—yet this student's cranium (skull) was 95% filled with fluid. What was left of the brain was a layer 1–2 millimeters thick on the inside of the cranium. In other words, the man had virtually no brain. Calculations yielded brain tissue weight somewhere between 100 and 150 grams, whereas a normal brain weighs 1500 grams (three pounds)! Of course, this phenomenon goes against prevailing neuroscience. And as no one knew or knows how to handle such a grand anomaly, it was and is completely ignored.

In the 1990s, this "brainless" man appeared in a documentary aired on Yorkshire Television (Dallas, Lawson, & Flynn, 1982). It showed an fMRI scan of a normal brain, which included the usual orange and green spots that indicated activity. Next they showed a scan of the "brainless" man, and lo and behold, the skull was largely empty. Yet, there was a very thin layer on the inside of the cranium—with orange and green spots indicating activity in that residual brain. I was so lucky to stumble upon this documentary and remember clearly the voice-over saying that this person found it hard to live with the idea that he has virtually no brain yet is a normal person of high intelligence.

At the end of his life in 1994, Lorber rightly complained that nobody had ever taken up these findings. Even in a very recent book, issued in my home country with the title *Wij zijn ons brein* (We Are Our Brains), authored by Dick F. Swaab, a world-renowned neurobiologist, this issue of practically-brainless, but nonetheless intelligent people is totally ignored . . . just as if it does not exist.

But it does: At the beginning of 2010, after I had delivered a lecture on NDEs during which I had mentioned Lorber's work, an elderly man came up to me and said, "I am a retired neurologist. One of my patients also appeared to have virtually no brain, yet he is highly intelligent, is happily married, and has four children." I asked him whether he had an explanation. He said, "No, I cannot explain this." For interested readers, Lewin and Lorber's work is reviewed and discussed at http://www.flatrock.org.nz/topics/science/is_the_brain_really_necessary.htm.

Terminal Lucidity

Now, that is one anomaly that makes us think! But another one is the very strange phenomenon called "terminal lucidity" (Nahm, 2009;

Nahm & Greyson, 2009). This a very rare phenomenon that happens to people who either are in a highly-progressed condition of dementia, such as Alzheimer's disease, or are suffering from mental diseases involving a similar deteriorating condition. It all boils down to an inexplicable lucidity during the last days or even hours before their deaths, despite the fact that, in the case of total dementia, these people's brains are irreparably damaged. All of a sudden their behavior seems completely normal again: They have their full memories and cognitive qualities back, they can talk to their relatives and make arrangements with them for such complex phenomena as their funerals and division of their bequests. After this relatively brief episode, they die peacefully.

The same applies with people who suffer from irreparable mental diseases, as in two cases published recently by Michael Nahm (2009). In one case (pp. 92–93), a Royal Navy ex-lieutenant so demented he didn't even remember his first name, suddenly became rational enough to ask for and converse meaningfully with a clergyman—then died the next day. An autopsy revealed widespread pathology in the cranium and the brain itself. In other words, his brain was very damaged, yet at the end of his life he was completely lucid. In another case (p. 95), a man was summoned one day by the director of an asylum to which the man's brother had been committed for several years due to "serious mental derangement" (p. 95). During the visit, the brother was perfectly mentally clear. As the man left, the director predicted that the brother's mental clarity portended his imminent death—which it actually did. Autopsy revealed the brain to have been in a long-term condition of serious infection and inflammation. Indeed: The patient had a very sick and thus not properly working brain, yet during his final hours he was completely lucid.

I find it curious that terminal lucidity seems to occur fairly often yet has received so little attention in the professional literature. Perhaps it is deliberately ignored by doctors and/or nursing staff because it cannot be explained through prevailing science.

Conclusion

To echo William James, "If you wish to upset the law that all crows are black, you mustn't seek to show that no crows are; it is enough if you prove one single crow to be white" (James, 1897, p. 5). The above case "anecdotes" of terminal lucidity, which can hardly be denied, as well as the fact that some virtually brainless people can be highly

intelligent and social, lead to an almost unavoidable conclusion: that *consciousness is not a product of the brain*. Rather, consciousness will make use of the brain, or won't even use a brain in case of the brain's virtual absence, but will then express itself through other—as yet unexplained—pathways.

Parnia spoke of an illusion. Yes, there is an illusion: that the brain produces OBEs and NDEs. However, given the above facts, it seems far more likely that consciousness acts separately from the brain and that NDEs and OBEs are manifestations of that separately acting consciousness.

Quite logically there seems no other conclusion possible, unless someone discovers that in the absence of a full brain within the skull, brain matter is spread out all over the body. But to me, that finding seems pretty unlikely.

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LETTER TO THE EDITOR

Near-Death Experiences and EEG Surges at End of Life

To the Editor:

Lakhmir Chawla and colleagues (2009) reported that patients who were at end of life and had life support withdrawn—that is, no medications, IV infusions, or machine ventilation—exhibited a surge of electroencephalographic (EEG) activity just prior to complete arrest of blood flow and death. The researchers speculated that a similar surge of electrical brain activity may account for the near-death experiences (NDEs) of patients who suffer cardiac arrest but are revived. The observed EEG surges appear of sufficient duration and strength as to account for the vivid experiences reported in NDEs.

Of course, the immediate response to this conjecture is that many NDEs occur under conditions without these clinical circumstances (see Greyson, Kelly & Kelly, 2009), and, thus, the proposed connection does not provide a complete explanation of NDEs. Indeed, it is impossible to tell just what the deceased patient experienced in the final minutes of the dying process. Nevertheless, Chawla and colleagues reported that the presence of an objectively measured electrical signal at the time of death has been a source of comfort to many of the families of these patients, indicating that "something" happens at the time of death.

We propose an alternative explanation of this phenomenon.

In their end-of-life protocol, Chawla and colleagues used an EEG monitoring device placed on the patient's forehead. The device analyzes the frontal cortical EEG signal and produces an integer score of the level of electrical brain activity from 0 (equivalent to EEG silence) to 100 (equivalent to fully awake and alert). These monitors are used primarily to track surgical patient anesthesia levels, where a value between 40 and 60 indicates an appropriate level for general anesthesia.

In each of the seven cases in their study, the patient's loss of blood pressure after life support was withdrawn was followed by a decline in the monitored EEG activity, followed by a large transient spike in EEG activity approaching levels normally associated with consciousness. The EEG surge was short-lived—on the order of 1 to 5 minutes—

and the activity then declined to zero. In all cases, possible sources of electrical artifacts were ruled out. In one case, the researchers captured and analyzed the raw EEG signal and confirmed that the EEG waveform was not an artifact. In fact, a high frequency waveform was present during the EEG surge, indicating apparent gamma frequency electrical activity that is normally associated with consciousness.

Chawla and colleagues (2009) also reported these EEG surges in more than 20 other patients, where the timing of the surge was consistent but the results were not recorded on a monitor. Not all ante-mortal patients showed the surge of EEG activity. The researchers suggested a possible physiological mechanism for the observed EEG surge: that as the brain reaches a critical level of hypoxia, a large number of neurons lose the sodium-potassium ion potential, which causes a sudden cascade of electrical activity that yields the high frequency EEG signals. As the cells subsequently lose their resting potential, the electrical activity rapidly dissipates. More recently, Chawla (2011) reported that more than 100 similar end-of-life cases had now been collected, where about 80% of end-of-life patients showed an EEG surge.

Chawla and colleagues speculated that a similar situation to the withdrawal of life support occurs with patients who have cardiac arrest. They suggested that in these cases, a similar terminal surge in brain activity occurs that likely causes conscious experiences. The resuscitated patient recalls the experience associated with the surge, which could be what people describe as NDEs. The researchers noted that the strong, sudden electrical event that is observed in the EEG surge is consistent with the intense, vivid quality of the NDE.

Are End-of-Life EEG Surges a Sign of the Soul?

Stuart Hameroff and Deepak Chopra (2010a) commented on the Chawla paper that perhaps the end-of-life EEG surge *is* related to conscious NDEs or out-of-body experiences, but the patient is simply not revived. Many NDErs and some NDE researchers consider NDEs to be manifestations of consciousness, or the soul, leaving the physical body. It is conceivable that the observed high frequency gamma oscillations associated with consciousness involve very low-energy quantum entanglements that can persist while other brain functions have run out of energy. Consistent with the phenomenology of NDE, consciousness could continue to exist outside the body and remain in a quantum-entangled state as a unified soul-like entity grounded in

Planck scale geometry. If the physical body is resuscitated, the quantum information can return, and the subject may report an NDE (Hameroff & Chopra, 2010b).

The notion that NDEs and other phenomena surrounding physical death are suggestive that "something"—the person's consciousness or soul—leaves the physical body at death has been around for centuries and more recently in the research literature. For example, Peter Fenwick (2010) has suggested that consciousness loosens from the physical body near the moment of death and finally separates from it at death. It is not unreasonable to propose that the observed end-of-life EEG surges are similarly associated with the separation of the person's conscious entity at the time of death.

In our view, however, the relationships among EEG surges, separation of consciousness, and NDEs are not completely straightforward.

With end-of-life protocols involving withdrawal of life support and subsequent death, it is impossible to tell just what a patient experiences in the final minutes. However, it is very possible that these patients are experiencing something like an NDE. In the shared death experience (SDE) that Raymond Moody described, persons who are in the presence of their dying loved one sometimes observe the process of dying in an altered state of mind (Moody & Perry, 2010). The people in attendance describe experiences such as rising out of their own bodies and seeing the out-of-body form of their loved one, hearing "heavenly" music, observing their loved one's life review, seeing deceased relatives and transcendent beings, and traveling part-way toward the light with their loved one. These elements in SDEs are also present in NDEs and occur even though the shared death experiencer is physically fit. Moody (pp. 157–158) proposed that all extra-normal experiences involving the dying process—NDEs, SDEs and other experiences at the time of death—are connected in a continuum.

On the other hand, it is implausible that the end-of-life EEG surge is a *direct* cause of NDEs. Many NDEs occur under conditions without cortical ischemia or loss of cortical electrical activity, for example NDEs occurring with falls or accidents in which the subject is not seriously injured (for example, Heim, 1892) and NDEs occurring during physical trauma that does not involve loss of brain electrical activity, such as a car accident involving no head or other serious injury. At best, EEG surges may co-occur with NDEs in cases where surges are observed, similar to co-occurrences that are present in these other kinds of NDEs, but the surges do not completely explain the NDEs.

An Alternative Model of NDE and Consciousness

In other work (Mays & Mays, 2011), we have postulated that the mind is a non-material energetic entity with the ability to interact with physical processes. During an NDE, the energetic mind separates from the physical body and operates independent of it. While outside the body, the NDEr's mind retains all of the faculties of ordinary consciousness, including memory. Upon resuscitation, the mind returns and is reunited with the body.

There is considerable evidence from NDE accounts and phantom limb phenomena that the energetic field of the mind can interact with physical processes. Physical interactions reported during NDEs include direct interactions with physical processes (light, sound waves, fog and material objects) and with embodied persons (tickling the nose of a person and "merging" with the brain and body of another person). In addition, some evidence indicates that the NDEr's energetic "body" emits light that is visible to animals.

In this view, the fundamental aspect of the mind entity is the *localized individuality or being-ness* of the person. This aspect of the mind manifests throughout the NDE in the persistence of self-conscious awareness with a particular location and visual perspective. Deceased and transcendent beings whom the NDEr encounters also display localized, individual natures. In our view, the mind is a new fundamental aspect of reality, not a derivative of known physical principles.

The view proposed by Hameroff and Chopra is that consciousness can separate from the body and can continue to exist during an NDE and after death in a quantum-entangled state, as a unified soul-like entity. This view does not fit the evidence of direct interaction in NDEs with physical processes including cases where an NDEr's mind "merges" with an embodied person.

Despite the differences in the nature of the separated conscious entity, our view is in agreement with Hameroff and Chopra's basic premise: that the person's consciousness separates as an independent entity from the physical body during an NDE and at death.

The Missing 80% and the Missing 20%

The incidence of NDEs reported in the research literature has been quite variable. The generally accepted expected incidence is about 17% in prospective studies and 35% in retrospective studies (Zingrone &

Alvarado, 2009, p. 36). From the beginning of near-death studies, researchers have questioned why only about 20% or so of people report an NDE during physical trauma or illness. What happens to the other 80%? Why don't they report an NDE?

Similarly, we can now ask, what happens to the 20% of end-of-life patients who do not exhibit an EEG surge? Why don't they have an EEG surge when life support is withdrawn?

We believe it is likely that both phenomena are two sides of the same coin. If about 20% of people in general are predisposed in some way whereby their consciousness can readily loosen and separate from the physical body, then they will be likely to report NDEs, *regardless of the contributing factors*. This argument would explain why so many apparent contributing factors result in the same phenomenal experience of NDE. With a serious medical trauma or illness, such as at end-of-life, the consciousness of these 20% would separate from the physical body and be out-of-body most of the time. People who have been in coma have reported such experiences (Lawrence, 1997). During withdrawal of life support, the consciousness of these 20% would already be separated from their physical body, and the separation would then simply become permanent. Because their consciousness is already separated, there would not be the physiological response of an EEG surge.

On the other hand, the 80% of people who, for whatever reasons, are not predisposed for their consciousness to separate readily from the physical body would remain unconscious. When life support is withdrawn, the process of separation of their consciousness from the physical body takes place, which is recorded as an EEG surge. *Thus the EEG surge is a physiological indication of the separation of the conscious entity from the physical body at death* for the 80% of people who have not separated before then.

In this view, the connection between end-of-life EEG surges and NDEs is *complementary*, not causal. This proposal can be tested by a comparative analysis of the patients who have and don't have end-of-life EEG surges. We would expect that patients who would be predisposed to separate from their body would not exhibit an EEG surge, for example people who had a prior NDE, who exhibited NDE aftereffects, or who had other similar physiological and psychological attributes.

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