

**DEBATING
NEAR-DEATH EXPERIENCES:**
PHILOSOPHICAL, SCIENTIFIC AND PSYCHOLOGICAL PERSPECTIVES



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Edited by
Artu Szutta
Joann Różycka-Tran

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Publishing reviewers:

prof. dr hab. Jacek Wojtysiak

dr hab. Ryszard Mordarski, prof. UWM

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Introduction

Let us begin by clarifying the main object of this volume. The name *near-death experience* suggests that it refers to experiences occurring when a person is close to death. However, as noted by several researchers, experiences displaying the characteristic phenomenology of NDEs may also occur in the absence of an objectively life-threatening condition (Facco & Agrillo, 2012; Charland-Verville et al., 2014). Such cases are sometimes referred to as *NDE-like experiences*. Nevertheless, NDEs can be characterized by identifying a cluster of their most commonly reported features. We do not claim that any particular feature is essential, in the sense of constituting a necessary condition for an experience to count as an NDE. Rather, NDEs display various combinations of these features, partly depending on the depth of the experience.¹

Typically, an NDE occurs when a person is, or at least believes herself or himself to be, close to death. It may be associated

¹ Ring (1980, Chapter 3, pp. 39–66) proposed a five-stage model of the NDE “core experience”: (1) peace, (2) separation from the body, (3) entering darkness, (4) seeing the light, and (5) entering the light. The list presented here is broader and incorporates features identified in subsequent research, particularly by Greyson (1983) and Martial et al. (2020). These additional features should not be understood as successive stages in Ring’s sense; rather, they can be organized loosely around his five-stage model and may occur at different points in an NDE.

with cardiac arrest, terminal illness, drug overdose, drowning, a serious accident, or another life-threatening event. This proximity to death, however, is better regarded as the typical context in which NDEs occur than as one of their phenomenological features.

The phenomenological features themselves can be roughly organized along a continuum from relatively shallow to more profound experiences (see especially Ring, 1980, pp. 39–66; see also Greyson, 1983; Martial et al., 2020). They include a feeling of peace and absence of pain; an unusual sense of clarity and altered awareness of one's condition; an out-of-body experience, sometimes accompanied by unusual forms of perception, such as panoramic or spherical vision; entry into darkness or passage through a tunnel or gateway; seeing a bright light, frequently experienced as loving or benevolent, and sometimes entering or merging with it; a life review; encounters with deceased relatives or other beings; extraordinary understanding or insight concerning one's life or reality more generally; a sense of reaching a border or point of no return; and, finally, deciding to return, being instructed to return, or finding oneself back in one's body. Some experiencers also report forms of apparently non-sensory awareness, including an apparent awareness of events or, more rarely, the thoughts of other persons.

Not all NDEs are peaceful or pleasurable. A minority are distressing and may involve fear, a sense of nonexistence or an eternal void, or explicitly hellish imagery, including frightening environments or apparently hostile or demonic entities (Greyson & Bush, 1992). Such distressing NDEs are better regarded as variants of NDE phenomenology than as stages on the continuum described above.

Another important characteristic of NDEs which, like their typical occurrence in the proximity of death, does not belong to their phenomenological description is their transformative power (Greyson, 1983; van Lommel et al., 2001; Long et al., 2024;

Miquel-Sendra & García-Alandete, 2025). NDErs typically report significant and long-lasting changes in their worldview and system of values. These include, among others, an increased belief in an afterlife and in a spiritual or transcendent dimension of reality, increased spirituality, and a reduced fear of death. Axiological changes commonly include decreased attachment to material possessions and social status, greater appreciation of life, increased compassion and concern for others, and a stronger emphasis on interpersonal relationships, personal or spiritual development, and connection with nature.

Reports of experiences resembling what we now call NDEs have a very long history. One of the earliest and best-known examples is the myth of Er in Book X of Plato's *Republic* (614b–621d), in which a warrior believed to be dead returns to life and recounts his journey into an otherworldly realm. Medieval literature contains numerous similar accounts, including the *Vision of Drythelm* and the *Vision of Tundale*, in which apparent death or severe illness is followed by a journey into another realm, return to ordinary life, and, in some cases, profound personal transformation (Zaleski, 1987).

The modern study of NDEs, however, began only in the second half of the twentieth century. A major turning point was the publication of Raymond Moody's *Life After Life* in 1975, which introduced the term *near-death experience* into widespread use and brought the phenomenon to public and scholarly attention (Moody, 1975; Romand & Ehret, 2025). Moody's work was not yet an example of rigorous empirical research in the contemporary sense. His primary aim was descriptive: on the basis of accounts collected from people who had come close to death or had been resuscitated, he attempted to identify recurrent elements and to portray the phenomenon as it was experienced and reported by the experiencers themselves. His work nevertheless provided a major impetus for more

systematic research, which soon developed in several different directions.

The first phase of systematic NDE research, represented especially by the work of Kenneth Ring (1980), Michael Sabom (1982), and Bruce Greyson (1983), concentrated primarily on collecting and analysing experiencers' reports and on developing a more precise characterization of the phenomenon. Researchers sought to identify recurrent phenomenological features of NDEs, determine how frequently they occurred and how they were related to one another, and develop criteria and instruments by which NDEs could be identified, compared, and assessed in terms of their depth. Ring (1980), for example, identified a recurring core pattern of NDE features and proposed both the Weighted Core Experience Index and his well-known five-stage model of increasingly profound NDEs. Sabom (1982), a cardiologist, paid particular attention to out-of-body experiences and investigated reports in which experiencers claimed to have perceived events occurring around their apparently unconscious bodies, including details of medical procedures. Greyson (1983), in turn, made an important step toward standardizing NDE research by developing the 16-item Near-Death Experience Scale, which organized characteristic features into cognitive, affective, paranormal, and transcendental components and provided researchers with a standardized instrument for identifying and measuring NDEs. At approximately the same time, survey research, most notably that of Gallup and Proctor (1982), attempted to estimate the prevalence of NDEs in the general population. Thus, the initial descriptive work inspired by Moody gradually developed into a more systematic empirical enterprise concerned with identifying, classifying, measuring, and comparing NDEs.

A further phase of NDE research shifted attention from the phenomenological description and classification of NDEs

toward the conditions under which they occur, their physiological and neuropsychological correlates, and their possible causes. Researchers sought to establish how frequently NDEs occur among people who come close to death, whether their occurrence correlates with particular medical or physiological conditions, and what happens in the brain under conditions associated with NDEs. Prospective studies of cardiac-arrest survivors proved particularly important in this respect, since they allowed researchers to identify cases of NDE within a defined population and to relate their occurrence to documented medical circumstances (van Lommel et al., 2001; Parnia et al., 2001). At the same time, various physiological and psychological explanations were proposed, invoking such mechanisms as cerebral hypoxia or anoxia, altered activity in particular brain regions, neurotransmitter activity, REM intrusion, and psychological responses to the threat of death (Blackmore, 1993; Mobbs & Watt, 2011; Nelson et al., 2006).

These investigations naturally gave rise to a more fundamental explanatory debate. Some researchers attempted to account for NDEs entirely in terms of brain processes and psychological mechanisms, whereas others questioned whether such explanations were sufficient, pointing, among other things, to the reported lucidity and structured character of NDEs under severely compromised physiological conditions, as well as to reports of apparently veridical perception during out-of-body experiences (Blackmore, 1993; van Lommel et al., 2001). Thus, alongside the empirical question of which physiological and psychological processes accompany or contribute to NDEs emerged a deeper question concerning the nature of the phenomenon itself: are NDEs merely hallucinations or products of the dying brain, or are they something more? This question, in turn, leads to the broader philosophical issue central to this volume: whether NDEs can be fully explained within the contemporary naturalistic paradigm or whether

an adequate account requires that this paradigm be extended or abandoned.

It is against this background that we invited NDE researchers and philosophers to contribute to this volume and to address the questions at the centre of the debate. We approached them with the following words:

Methodological naturalism provides the standard framework for contemporary scientific inquiry. From this perspective, reports by people who have undergone near-death experiences may appear highly unusual and deeply puzzling. Experiences of leaving one's body, encountering spiritual beings, or visiting seemingly otherworldly realms are difficult to reconcile with current scientific models of consciousness and perception.

Naturalistic accounts generally explain such experiences in terms of brain processes occurring under extreme physiological conditions, altered states of consciousness, or neurochemical mechanisms whose effects may resemble those produced by psychoactive substances such as ketamine. Such an approach may be regarded as a rational application of Occam's razor, favouring explanations that do not introduce entities or processes beyond those already recognised by the natural sciences.

At the same time, some researchers point to aspects of NDEs that they regard as difficult to accommodate within conventional naturalistic explanations, particularly their so-called veridical elements. During cardiac arrest or periods of severely impaired brain function, some individuals report witnessing events that they could not ordinarily have perceived through sensory means. Others describe NDEs not as confused or dreamlike hallucinations, but as exceptionally lucid experiences that brought them profound moral insights and resulted in lasting personal transformation.

These observations have led some researchers to propose broader models of consciousness, including non-reductive or non-local conceptions of the mind. They also raise the question

of whether the naturalistic framework itself might need to be extended or whether a fundamentally different perspective is required. We therefore invited the contributors to address the following questions and to present the reasons supporting their positions:

1. Are NDEs merely hallucinations, or are they something more? If the latter, what are they?
2. Does an adequate explanation of NDEs require us to go beyond the contemporary naturalistic paradigm? If so, could some form of extended naturalism be sufficient—and how far would naturalism need to be extended—or would a supernaturalist perspective be required?

Not all the contributions to this volume address these two questions directly, nor do all of them approach NDEs from the same disciplinary or theoretical perspective. Taken together, however, they provide the reader with a range of empirical findings, arguments, interpretations, and theoretical proposals relevant to answering them. We do not expect this volume to settle the debate. Rather, we hope that the exchange of different perspectives presented here will contribute to a better understanding of NDEs and of the broader questions concerning consciousness and reality that they raise. With these questions in mind, we now turn to the contributions themselves.

The Editors

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CHARLOTTE MARTIAL

GIGA Research, GIGA-Consciousness, Coma Science Group,
University of Liege, Liege, Belgium
NeuroRehab & Consciousness Clinic, Neurology Department,
University Hospital of Liege, Liege, Belgium
ORCID: 0000-0001-6291-3460
e-mail: cmartial@uliege.be

Beyond «mere hallucinations»: Near-death experiences as a window into consciousness

Abstract. Near-death experiences (NDEs) are often described as hallucination-like phenomena occurring in life-threatening circumstances, yet their distinctive phenomenology and lasting psychological effects suggest that this characterization may be insufficient. This paper proposes that NDEs are better understood as episodes of disconnected consciousness arising under extreme physiological and psychological stress. Drawing on neuroscientific and evolutionary approaches, it considers the possibility that NDEs may reflect adaptive survival mechanisms and facilitate later psychological transformation. The paper also asks whether explaining NDEs requires abandoning naturalism. It argues instead for a broader naturalistic framework that gives greater weight to first-person experience and integrates phenomenological, neural, bodily, and contextual levels of analysis. NDE research may thus contribute to the development of more comprehensive scientific theories of consciousness.

Keywords: Near-death experiences (NDEs); disconnected consciousness; naturalism; consciousness.

1. Are NDEs merely hallucinations, or are they something more? If the latter, what are they?

At first glance, near-death experiences (NDEs) appear to meet the criteria for hallucinations as defined in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5), namely “a sensory perception that has the compelling sense of reality of a true perception but that occurs without external stimulation of the relevant sensory organ” (American Psychiatric Association, 2013). However, classical NDEs differ from typical hallucinations in several important respects. In particular, they are typically reported during critical conditions characterized by severely altered or absent responsiveness and may therefore be better conceptualized as episodes of *disconnected consciousness*—that is, conscious experiences occurring while the individual is, at least to a large extent, disconnected from the external environment (Martial et al., 2020).

Yet reducing NDEs to mere hallucinations risks overlooking their distinctive phenomenology and potential biological significance. The key scientific question is not only *what* NDEs are, but *why* they occur. In this regard, our recent work has proposed an evolutionary account in which NDEs may have a biological purpose: the benefit of survival. More specifically, we suggest that thanatosis, aka death-feigning, a last-resort defense mechanism in animals, may be the evolutionary origin of NDEs (Peinkhofer,* Martial,* et al., 2021). We suggest that the acquisition of language enabled humans to transform these events from relatively stereotyped death-feigning under predatory attacks into the rich perceptions that form NDEs—and even extend to non-predatory situations (see Peinkhofer,* Martial,* et al., 2021 for details). From this perspective, NDEs can be seen as natural, adaptive mental states and constitute a sophisticated survival mechanism activated when the brain detects an imminent threat to the organism’s integrity (Martial,*

Fritz,* et al., 2025). Rather than reflecting a breakdown of the mind, NDEs could help maintain psychological organization during periods of overwhelming physiological and emotional stress by enabling some degree of dissociation from the life-threatening event and preserving a coherent sense of self at the edge of survival. Their adaptive role may also extend beyond the event itself, as NDEs can have profound and lasting effects on individuals' lives (Greyson, 2006; Sweeney et al., 2022) and may facilitate subsequent psychological adaptation and transformation. Thus, NDEs may be better understood not as “mere hallucinations,” but as episodes of disconnected consciousness that may serve an adaptive function.

2. Does an adequate explanation of this phenomenon require us to go beyond the contemporary naturalistic paradigm? If so, would some form of extended naturalism be sufficient—and how far would naturalism need to be extended—or would a supernaturalist perspective be required?

When it comes to consciousness more broadly, many fundamental questions remain unresolved. Chief among them is the so-called *hard problem of consciousness*, namely, the challenge of explaining how and why subjective experience arises from physical processes in the brain (Chalmers, 1995). Despite remarkable advances in neuroscience, there is currently no consensus account that fully explains how neural activity gives rise to the felt qualities of conscious experience. This is one of the reasons why I do not believe that NDEs compel us to abandon the naturalistic paradigm. The contemporary naturalistic framework has been highly successful in explaining the biological and neural mechanisms underlying many phenomena. However, I do question the relative weight that this framework has traditionally assigned to lived, first-person experience. A deeper understanding of NDEs may therefore

require not a rejection of naturalism, but an expansion of our scientific approach to consciousness. In line with emerging neurophenomenological perspectives (Varela, 1996), first-person experience should occupy a more central place in scientific inquiry. Promising frameworks are beginning to emerge, particularly in the study of non-ordinary states of consciousness, which for example allow the plastic and dynamic nature of experience to be investigated from a multiscale perspective encompassing mind, brain, body, and context (Timmermann et al., 2023). From this perspective, NDEs do not necessarily point toward supernatural explanations (Martial & Kondziella, 2021; see Martial et al., 2023, for a discussion); rather, they may expose limitations in our current explanatory frameworks and encourage the development of more comprehensive models of mind and consciousness. The challenge ahead may therefore be less about transcending naturalism than about developing a richer form of naturalism capable of fully accommodating the reality and scientific significance of subjective experience.

Considering the NDE literature specifically, I think one of the major challenges facing the field is that many empirical studies have suffered from important methodological limitations. Historically, NDE research has also lacked sufficient integration with contemporary neuroscience and has often proceeded without clear theoretical frameworks for interpreting the phenomenon (Fritz*, Martial, et al., 2026; Martial et al., 2022). As a result, the debate has frequently become polarized between reductive explanations on the one hand and non-local consciousness interpretations on the other. Fortunately, this situation is changing. Rather than being viewed as oddities that defy scientific understanding, NDEs are increasingly being investigated as meaningful neurocognitive phenomena that may reveal the brain's remarkable capacity to maintain consciousness, construct meaning, and facilitate coping and adaptation under conditions of extreme physiological and

psychological stress. I am optimistic about the future of the field because researchers are increasingly adopting more neutral and methodologically rigorous approaches, setting aside their own personal beliefs and focusing instead on empirical evidence and testable hypotheses. This shift does not imply dismissing or invalidating the beliefs or interpretations of individuals who experience NDEs; rather, it underscores the importance of distinguishing participants' subjective interpretations from researchers' theoretical assumptions about the underlying mechanisms of NDEs.

More broadly, I believe NDEs represent one of the most important phenomena for consciousness research. They challenge our assumptions about when and under what conditions conscious experience can occur, often arising in circumstances in which conventional expectations might predict a profound or complete loss of consciousness. NDEs should therefore not be treated as 'anomalies' that lie beyond scientific explanation. On the contrary, they can be viewed as natural experiments that expose the limits of our current theories and provide a unique opportunity to refine them. Rather than suggesting that consciousness is inherently inaccessible to science, NDEs highlight precisely those areas in which our understanding remains incomplete and where future advances may emerge. In this sense, NDEs are not an obstacle to a scientific account of consciousness, but potentially one of the most informative avenues through which such an account may be further developed.

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PATRICK BRISSEY
University of South Carolina
ORCID: 0000-0001-8512-0631
e-mail: pwbrisse@email.sc.edu

The Near-Death Dilemma

Abstract. My thesis is that a definitive near-death experience (NDE) is not a hallucination but a supernatural, life-changing occurrence that is unexplainable by ontological naturalism. First, I use Al Sullivan's NDE to argue that Apparent Veridical Perception (AVP) entails non-local consciousness. Second, I argue that Sullivan's transcendent, other-worldly episode of his NDE requires a supernatural ontology. Lastly, I argue that the current scientific paradigm fails to adequately explain Sullivan's NDE, and I conclude that NDEs seem to be anomalous to the current scientific/naturalistic paradigm, which indicates continued investigation is needed.

Keywords: Near-death experiences (NDE), naturalism, Al Sullivan, hallucination thesis, anesthesia awareness, *ad hoc* hypotheses, Peak in Darien experiences, Eben Alexander

On January 18, 1988, Dr. Hiroyoshi Takata, a cardiovascular surgeon, was surprisingly acting like a bird attempting to fly away during an operation. This, at least, was the testimony of Al Sullivan after his surgery. Before this event, Sullivan was rushed to the hospital and underwent a quadruple bypass surgery, and, during the procedure, the surgeon was flapping his arms like a chicken who wanted to fly away (Cook et al., 1998, pp. 399-400; Kelly et al., 2000, p. 517; Greyson, 2021, p. 65). This was not Sullivan's exact description. He told Bruce Greyson (2021), Chester Carlson Professor Emeritus of Psychiatry and Neurobehavioral Sciences at the University of

Virginia, “I thought [Dr. Takata] was flapping his arms as if he was trying to fly” (p. 65).

While this uncanny behavior is interesting, even more compelling is how Sullivan came to know about Takata’s peculiar actions. Sullivan claimed that he had a near-death experience (NDE), escaped his body during surgery, traveled away, hovered over the surgical table, and looked down on the operation from on high. NDEs are heightened, life-changing experiences that usually occur when there is a threat (or perception of a threat) to one’s life. Although no two NDEs are the same, there are common features, which include out-of-body experiences (OBE), tunnel vision with a bright light, conversations with deceased loved ones, aftereffects, and life reviews. Sullivan’s experience was a non-life-threatening NDE in which he experienced many of the traditional NDE features without a threat to his life (Charland-Verville, 2014). Upon hearing about Sullivan’s NDE, Greyson’s initial surmise was that he was having a drug-induced hallucination, a dream state, caused by the general anesthesia medication. As Greyson comments, “This struck me as too bizarre to have really happened. [...] In all my years in the medical field, I have never seen or heard of a surgeon doing such a thing” (p. 65). Further, Takata’s professional reputation was impeccable.¹ It seemed to be an open and shut case—Sullivan’s claims were obviously false. However, Greyson later learned that Dr. Takata had a habit of flapping his elbows during surgery.

Was Sullivan “out of his mind,” having a lively hallucination, or “out of his body,” participating in remote vision? Naturalists²

¹ Greyson (2021, p. 65) described him as a “straightlaced Japanese American cardiac surgeon with an excellent reputation.”

² Naturalism is the ontological claim that denies supernaturalism; there is no God, angels, or spirits. There are broad and narrow naturalists. The latter are equivalent to materialists, while the former may include immaterial entities like universals, mathematical entities, the laws of

(and materialists)³ contend that NDEs are hallucinations and argue that veridical perception (observations corroborated by third parties) is gained by some non-supernatural means. Supernaturalists, on the other hand, provide a literal interpretation of NDEs and contend that Sullivan's mind traveled out his body and observed events independent of his brain. Both theses are formidable. In this paper, I will argue that the evidence favors the supernatural thesis. In the first section, I will argue that there is a transphysical aspect of the self, evidenced by apparent veridical perception (AVP). In the second section, I cover the transcendent portion of Sullivan's NDE, his experiences in a transmaterial (heavenly) realm, and provide a series of arguments that, taken collectively, provide grounds for believing there is an afterlife. I conclude that NDEs entail a supernaturalist ontology, including souls, celestial beings, and heavenly realms, that is incompatible with naturalism or extended naturalism. This suggests further NDE studies are needed to resolve this seemingly anomalous phenomenon which questions the current scientific/naturalistic paradigm.

1. Hallucination or the Existence of a Transphysical Self?

In 1990, a few years after Sullivan's NDE, Bruce Greyson was a professor at the University of Connecticut and started a psychological support group for NDErs (Greyson, 2021, p. 65; Cook et al., 1998, p. 399). After the event, a conversation sparked, and Sullivan divulged his NDE. He said that he was a fifty-six-year-

logic, and non-local theories of the mind that are dependent on the brain.

³ Materialism is the ontological view that only physical objects exist—no God, souls, or immaterial objects.

old truck driver who experienced chest pain while on the job. The medical professionals determined that a coronary artery to his heart was totally blocked. He was rushed to the operating room, but, upon further discovery, he had a quadruple coronary bypass surgery at Harford Hospital in Connecticut on January 18, 1988 (Cook et al., 1998, p. 399).

During the surgery, Sullivan claims to have had an out-of-body experience (OBE), among other common features of NDEs. From above, he looked down and witnessed his body lying on a table with “light blue sheets” that were cut open to give the physicians access to his heart cavity (Sunfellow NDE Misc, 2021).⁴ He also observed the eccentric actions of his surgeon, who was flapping his arms as if he wanted to fly away. In his discussion with Sullivan, Greyson enquired whether he reported his observations to the physician. Sullivan responded in the affirmative but reported that the conversation did not go well. He described Takata as “embarrassed” and “defensive” when he talked to him a couple of days after the surgery. Takata asked, “Who told you that?” (Greyson, 2021, p. 67), and defensively remarked, “Well, you’re here, you’re alive, so I must do something right” (Cook et al., 1998, p. 400).

Sullivan also informed his cardiologist of the NDE, Dr. Anthony LaSala, but the cardiologist, at least initially, attributed the experience to the effects of the medication. LaSala changed his opinion, however, when he heard Sullivan’s description of Takata’s eccentric behavior. He instantly corroborated Sullivan’s OBE, stating “this was a peculiar habit of Dr. Takata” (Cook et al., 1998, p. 400; Sunfellow NDE Misc, 2021).

In 1997, Greyson investigated Sullivan’s testimony by interviewing the people that were part of the operation team.

⁴ Sunfellow NDE Misc YouTube channel includes a video of Al Sullivan’s interview in the Natural Geographic documentary, entitled, “The Moment of Death.”

Takata confirmed that Sullivan told him about what he observed (Greyson, 2021, p. 67). Takata further explained that during his medical training in Japan, he conscientiously avoided contamination of his hands and his patients by flattening his hands against his chest with his elbows extruding (p. 67; Cook et al., 1998, p. 400). With this aim, Dr. Takata directed his operation team with his elbows instead of pointing with his fingers, which, from an NDE perspective above, would appear to be an attempt at flight (Kelly et al., 2000, p. 517).⁵ Additionally, LaSala confirmed in a documentary reenactment of his NDE that his observation of the surgery is unexplainable (Sunfellow NDE Misc, 2021).

Al Sullivan's AVP provides compelling evidence for a transphysical aspect of the self (non-local consciousness). What can explain his knowledge of Takata's idiosyncratic behavior during surgery? The facts are clear: (1) He was under general anesthesia during his operation, resulting in his brain being offline. In addition, his eyes were taped shut and a drape deterred his vision of Takata, but, despite this, (2) he observed the surgeon's aberrant behavior which is physically impossible. Given the facts, the following is entailed: (3) The best explanation is his immaterial soul left his body and observed the surgery from above. Thus, there is a transphysical aspect of the self, capable of functioning independent of the brain.

I emphasize that Al Sullivan's NDE is not an anomaly. There are over 100 documented and evidential cases in the literature

⁵ Sullivan's OBE was also corroborated by Takata and LaSala in the National Geographic documentary reenactment of the NDE. See Sunfellow NDE Misc (2021). Further, Titus Rivas had an email correspondence with Takata in 2004, and he learned that Takata made remarks about Sullivan's operation in a Japanese TV program. In 2009, Masayuki Ohkado, a professor, translated Takata's remarks. Rivas includes the translation in Rivas et al. (2023), p. 11. Takata remarked that current science cannot explain Sullivan's AVP.

(Parnia et al., 2014, p. 5; Rivas et al., 2023, pp. 114-122;). One of the most evidential is Pam Reynold's NDE (Brissey, 2023; Rivas et al., 2023, pp. 114-122; Sabom, 1998). Researchers such as Kenneth Ring, Micheal Sabom, Melvin Morse, Jeff Long, Greyson, Janice Miner Holden, Titus Rivas, and Sam Parnia have provided cases of NDEs with veridical perception, along with paranormal components, whereby these researchers concluded that there is a transmaterial aspect of the self (Holden et al., 2009; Long, 2010, ch. 3; Moody, 1975, ch. 1; Morse, 1991; Parnia and Fenwick, 2002, pp. 5-6; Ring, 1980, and Rivas et al., 2023). Further, there are studies that show accurate visual perception in the blind during NDEs (Ring and Valarino, 2006).

Naturalists contend that NDEs are hallucinations. In fact, this was Takata's, LaSala's, and Greyson's initial conclusion.⁶ On this view, Sullivan's OBE was a dream-like state where his imagination formed an arm flapping scene without regard to the way things were in the external world. It was a coincidence that there was correspondence with the surgeon's behavior. For the naturalist's hallucination thesis to be plausible, it must explain (1) how Sullivan experienced consciousness while his brain was offline and (2) how his observation was corroborated by two physicians. The answer to (1) is his brain, in some way, must have been functional during either the operation (i.e., anesthesia awareness) or his mind came back online near the end of the operation when he was reviving from the anesthesia medication (Augustine, 2007, pp. 220-227; Fischer and Mitchell-Yellin, 2016, ch. 3; Woerlee, 2011, pp. 11-17). The naturalist's answer to (2) is that it was a lucky guess. Unlikely, commonsense explanations are more probable than supernatural explanations (Fischer-Mitchell-Yellin, 2016, ch. 11).

⁶ After hearing the full testimony, all three came to believe the supernaturalist explanation of Sullivan's NDE.

In response, there is a stark difference between hallucinations and NDEs. A hallucination is commonly reported as fragmented, unclear, confusing, incoherent, unbelievable, not memorable, and having inconsistent content, (TahoeDoc, 2017).⁷ The phenomenology of an NDE, on the other hand, is clear, life changing, ultra-real, believable, memorable, and has common content across experiencers and cultures (e.g., OBE, tunnel vision, and a life review) (Greyson, 2010, p. 160; Long, 2010, p. 13; Marie Thonnard et al. (2013); Parnia et al. (2014), p. 3; van Lommel, 2001, p. 2039). Researchers such as Kenneth Ring (1980, pp. 83, 210), Michael Sabom (1982, pp. 168–171), Penny Sartori (2008, pp. 275–276), and Janice Holden (2009, pp. 201–202) have all found that the experiences reported in NDEs are quite different from hallucinations.

In addition, the naturalist's hallucination thesis fails to explain the core of Sullivan's NDE. The climax of Sullivan's narrative is the corroborated testimony of events that occurred while his brain was offline. How could he have known about Takata's arm flapping? A naturalist could respond with an explanation that is compatible with naturalism and, then, conclude that this *ad hoc* hypothesis is more plausible than a supernatural one. For instance, one could argue that Sullivan's veridical perception was a lucky guess (Fischer and Mitchell-Yellin, 2016, ch. 11), or that the physician's unorthodox behaviors occurred before (Cook et al., 1998, p. 400–401), during (Augustine, 2007; Woerlee, 2011), or after induction of the anesthetic medication (Fischer and Mitchell-Yellin, 2016, ch. 3). Given this strategy, the

⁷ Robert Spitzer's (2015) summary of naturalist models of NDEs makes this point. Spitzer shows that Olaf Blanche's parietal lobe stimulated OBEs, James Whinnery's "dreamlet" NDEs, Michael Persinger's magnetically stimulated, temporal lobe NDEs, and Karl Jansen's ketamine NDEs are illusive and fraudulent. These drug induced NDE-like perceptions lack lucidity and are unbelievable and not memorable, unlike Bonafide NDEs. See Spitzer (2015), pp. 196–201.

naturalist can generally target when and how the observation was made, which seems to give an advantage over the supernaturalist's explanation. Even if there is no local, testimonial evidence for a lucky guess or a surmise concerning when the anesthetics began working, these practical *ad hoc* explanations are significantly more probable than a miraculous explanation.

The lucky guess thesis seems plausible in the abstract, but it is obviously improbable when we turn to the details of Sullivan's veridical OBE. It is highly unlikely that Sullivan could guess that Takata was flailing his elbows as if he was going to fly away during the operation, but this response is consistent with the naturalist's claim that *ad hoc* explanations are indeed improbable. The naturalist's proposal is that, although unlikely, commonsense/conjectured explanatory hypotheses are more probable than supernaturalist ones. The problem with this argument is it assumes atheism and, thus, the improbability of a supernatural event. If theism is true, then miracles are live possibilities (Lewis, 2001, ch.1). On the other hand, if one is agnostic about the existence of God, the background probability of a miracle is approximately 50-50,⁸ meaning that the local probability (e.g. whether Sullivan's, Takata's, and LaSala's testimonies are reliable) is what is at issue. Given this, there are a variety of contemporary arguments that provide plausible grounds for the existence of God (Feser, 2017; Spitzer, 2015; Swinburne, 2015; William Lane Craig, 2000). Better yet, there is no good argument that demonstrates God does not exist.⁹

⁸ The background probability of an event is the probability given past cases without consideration of new, local evidence, like new observations and testimony.

⁹ An argument is needed, like the logical problem of evil (Mackie, 1982) or the evidential problem of evil (Rowe, 1979). There are, however, plausible responses. On the logical problem of evil, see Davies (2011) and Plantinga (1974). On the evidential problem, see Stump (2010) and Craig (2008).

If we adopt the latter more skeptical view, the background probability for a miracle should be 50-50, equiprobability. We should be agnostic as to whether supernatural events occur, and, then, decide the issue based on testimony and observations of the medical professionals during the surgery. As I have noted, Sullivan's and his physician's testimonies were impeccable.¹⁰ Given this, the naturalist's *ad hoc* lucky guess hypothesis is not supported by testimonial evidence, which makes it less probable than the supernaturalist's hypothesis, which, again, is supported by sound evidence.

The next question is when and how did Sullivan's observation of Takata occur. Cook et al. (1998) proposed that it could have occurred before the surgery and, more importantly, before the anesthesia was in effect. They explain, "It occurred to us that Mr. Sullivan might have seen Dr. Takata 'flapping' his elbows when the balloon was being inserted but before he was given general anesthesia and lost consciousness, and that he had later confused the order of events" (p. 400). On this proposal, Sullivan received local anesthesia by a syringe at his groin to insert an intraaortic balloon into his artery to slide it up to his heart. The key issue is the order in which the events occurred. Greyson investigated the issue and asked Sullivan when he observed Takata's flapping his arms. He reported that Takata was standing alone near his chest that was being held open by "metal clamps," while his assistants were working at his groin (p. 400). Given this, Sullivan did not receive local anesthesia at the beginning of the surgery. Rather, he was given general anesthesia, his chest was opened, and, then, the intraaortic balloon was inserted in the artery at his groin. Thus, Takata was

¹⁰ I note that this issue does not depend on whether God exists or not, but agnosticism, the lack of good reason. If one is agnostic about God, then one will be agnostic about miracles, giving the background likelihood for miracles as equiprobable. For a primer on Bayesian probability. See Hacking (2001).

directing the procedure from Sullivan's chest with his elbows while Sullivan was unconscious. This reasoning resulted in Cook et al. (1998) discarding the pre-operation thesis.

It is possible that Sullivan observed Takata's "elbow directing" during the operation, due to anesthesia awareness. Sullivan's cardiologist, LaSala, hypothetically proposed anesthesia awareness in the video documentary of the NDE by National Geographic. He proposed that the anesthesia could have worn off during the operation, the patient regained consciousness, and observed Takata's eccentric behavior. Nevertheless, LaSala discards this proposal based on the circumstances of the operation.¹¹ He explains, "Even if he was conscious, it would be impossible for Al to see Takata's stance or arm movement because Al is behind a drape that blocks the vision of the patient and his eyes were taped shut" (Rivas et. al, 2023, p. 10).¹²

Could Takata have revived from the anesthesia medication at the end of the operation and observed Takata's actions during this period? This is Fischer and Mitchell-Yellin's (2016) explanation as to how NDErs experience consciousness when their brains seem to be offline. Their proposal is NDErs have NDEs when they regain consciousness. The problem with this thesis is Sullivan's NDE provides a time stamp. He observed Takata while his heart was exposed which means that his observation was not at the end of the surgery but while he was under general anesthesia. Further, NDErs have ultra-real, vivid experiences, with common features (e.g., OBEs, tunnel vision, life reviews, and aftereffects), while the experience of recovery from anesthesia is grogginess, confusion, and disorientation with random content (TahoeDoc, 2017).

¹¹ Anesthesia awareness is extremely rare. See American Society of Anesthesiologists, 2022.

¹² Also, Sullivan's eyes were taped shut.

How could Al Sullivan have known about Dr. Takata's eccentric behavior during his operation? The naturalist proposes hallucination thesis, anesthesia awareness, and *ad hoc* hypotheses that are not backed by testimonial evidence, but this explanatory theory fails. The supernaturalist thesis, on the other hand, captures the details of Sullivan's NDE and supports the claims with sound testimony.

2. A Heavenly Ontology

In addition to his corroborated veridical perception (AVP), Sullivan had a transcendent, other-worldly experience. He tells us that he began his "journey" upwards away from his body during the operation, traveling through a billowy, black smoke that covered himself on all sides.¹³ In the distance was an "amphitheater" with a beautiful, glowing bright light, which gave him a feeling of deep "joy," "peace," and "love."¹⁴ His purpose for travelling through the vast smoke was the joyful and loving light, which is a common theme in NDEs.¹⁵

As he approached the amphitheater, he climbed a wall and, looking to his lower left side, observed his body on the surgi-

¹³ Jeff Long (2010), founder of the Near-Death Experience Research Foundation (NDERF; www.nderf.org), the world's largest collection of NDE reports with over 5,906 entries and growing as of August 2026, conducted a study that used 613 NDErs who had a high ranking on the Greyson NDE Scale. They answered an NDERF questionnaire, and Long found that 33.8% NDErs had tunnel vision. See Long (2010), p. 8.

¹⁴ Jeff Long's NDERF study (2010, p. 10) indicates that 64.6% of NDErs observed a "bright light."

¹⁵ There is another scene in the NDE. As Sullivan got closer to the wall, three "humanlike figures" appeared to his left, but Sullivan does not initially divulge who they were or whether he had an interaction with them. We are given ellipses in Cook et al. (1998), but, later, Sullivan mentions that one was his brother-in-law who died in 1986.

cal table with light-blue sheets. His chest cavity was cut open, and he viewed the surgeon, Dr. Takata, standing close to his exposed heart, at times, flapping his elbows.¹⁶ Sullivan, then, turned to the right side of the amphitheater and he viewed a “brilliant yellow light” that was emitted from a golden tunnel that had extrasensory properties. He explains, “although it was the brightest [light] that I have ever looked into, it was of no discomfort to the eyes at all” (Cook et al., 1998, p. 399). Out of the bright light, came Sullivan’s mother, who died when he was 7,¹⁷ and they communicated telepathically.¹⁸ Eventually, she traveled to the material realm, where his body was located, and moved the surgeon’s hand. Immediately, Sullivan noticed that Takata swiped at a flying insect that landed on Sullivan’s heart. His mother, then, traveled back to where Sullivan was located, in the transmateral realm, and extended a hand to him, but he could not grasp it. She smiled and floated away towards the bright tunnel. This ended Sullivan’s NDE.¹⁹

There is compelling evidence that the transcendent episode of Sullivan’s NDE is accurate like his AVP. I highlight, however,

¹⁶ Long’s NDERF study (2010, pp. 5-6) indicates that 75.4% of NDEr’s have an OBE.

¹⁷ His mother died at 37, and Sullivan was in his fifties during the time of the NDE. Thus, she appeared young to Sullivan.

¹⁸ Sullivan tells us that she made motions with her mouth, but it was inaudible, and that they communicated through “thought transfer.” Sullivan did not divulge the contents of the conversation. In Jeff Long’s NDERF study (2010, pp. 11-12), 57.3% of NDEr’s had conversations with deceased loved ones. The study did not cover telepathic communication.

¹⁹ Greyson (2021) reveals additional content not included in Cook et al. (1998) or Rivas et al. (2023). He tells us that another celestial being approached Sullivan and informed that a child that lives near Sullivan has cancer. It was Al’s job to inform the parents. Sullivan told Greyson that he worried about how he could deliver such a depressing message. This portion of Sullivan’s transcendent NDE is not confirmed. See Greyson (2021), p. 66.

the arguments for a transcendent reality are numerous,²⁰ but, unlike the argument from AVP, no one argument is independently plausible. Rather, the arguments, taken collectively, provide strong credence for the supernaturalist's thesis. In what follows, I include some of the popular arguments in the NDE literature, which, I contend, is sufficient to establish a high probability for the supernaturalist's claims.

First, there is evidence that Sullivan's NDE is consistent with reality. He claims to have had conversations with his deceased brother-in-law and mother in the afterlife, and, indeed, they were dead at the time of his NDE.²¹

Second, Sullivan's AVP provides further credence for the accuracy of his transcendent experiences. His NDE was a single, unified experience, not contrasting episodes, not an NDE with, first, an OBE (episode 1) and, then, a transcendent experience (episode 2). In Sullivan's NDE, he accurately described his operation from the transmateral realm, looking down into the material realm, which combines the two so-called phases of the experience. In contrast, take a so-called drug-induced NDE as an example, which is commonly a tale of two experiences (Fischer and Mitchell-Yellin, 2016, pp. 161–162; Sacks, 2012, p. 102). Imagine one uses ketamine or some other psychedelic (DMT or LSD), which, at times, produces an NDE experience (Jansen, 1997).²² Nevertheless, there are distinguishable episodes in the experience. There is the hallucination phase where the experience is groggy, less clear, and less coherent (in this phase, one is "high"), but, eventually, the drug can become a conduit to a definitive NDE, where the experience is ultra-real, lucid, and coherent (Brissey, 2023, p. 233; Mays and Mays, 2017). Sulli-

²⁰ (?)

²¹ Sullivan testified to this, and Rivas et al. (2023) tells us that his mother died when he was 7 years old.

²² For an opposing view, see Greyson and Pehlivanova, (2025), p. 4-5.

van's NDE was noticeably unlike a drug-facilitated NDE. There is no fragmented unbelievable stage before an ultra-real one. Given that Sullivan's NDE was a single experience, evidence for the accuracy of his OBE observations in the material realm is evidence for his observations in the transmateral realm.

Third, Peak in Darien experiences also provide reasons to believe the accuracy of Sullivan's transcendent NDE. Although Sullivan did not have such an experience, this case provides plausibility to transcendent perceptions in general. A Peak in Darien experience is when an NDEr has a conversation with a deceased loved one whom the NDEr did not know was deceased or that it was a family member during the NDE but comes to learn this after recovery (Greyson, 2010, p. 162).²³ The knowledge of the death is difficult to explain for naturalists. Take Eben Alexander's NDE as an example. Alexander (2012), a neurosurgeon and author of the bestselling book, *Proof of Heaven*, had bacterial meningitis in 2008, went into a coma for 7 days, at which time he had a transcendent NDE that included floating on a wing of a butterfly, guided by a beautiful woman, which he described in detail post-recovery to his wife, family, and friends (Alexander, 2012, p. 39-41; Rivas et al., 2023, p. 208).²⁴ In 2007, a year before his NDE, Alexander met his biological family that consisted of his birth parents (Ann and Richard), his sister (Kathy), and brother (David).²⁵ Unbeknownst to Alexander, he had another biological sister (Betsy) that the family did not share with him because she died nine years before the reunion. A year and four months later, Sullivan has his NDE, he leaves the hospital, and his sister Kathy sends him a picture of Betsy. At the time, Alexander was learning about Peak in Darien cases

²³ For an explanation of the origin of the term "Peak in Darien experience," see Greyson (2010) pp. 161-162.

²⁴ For opposing arguments, see Dittrich, 2013, July 2; Fischer and Mitchell-Yellin, 2016, p. 59-83; Harris, 2012, Nov. 12.

²⁵ Sullivan was adopted when he was four months old.

in Elisabeth Kübler-Ross's (2008) book, *On Life After Death*, and, then, it occurred to him that his "beautiful, angelic guide" was his biological sister (Alexander, 2012, pp. 168-169). This was an outstanding moment for Alexander and his family. After his NDE and before receiving the picture, Alexander actively and enthusiastically described his angelic guide to his family members and friends. Rivas et al. (2023, p. 209) claims that his description of Betsy's appearance were so accurate that "they could be confirmed by those who similarly had never met Betsy." Alexander claims that his wife and family corroborated his description of his sister, but, in addition, NDE researcher Robert Mays conducted a personal communication (August 5 and 10, 2013) with Sylvia White, a "friend of the family," who corroborated the detail and accuracy of Alexander's testimony (Rivas et al., 2023, p. 209).

Eben Alexander's apparently accurate Peak in Darien experience is not an anomaly. There are other compelling and famous cases in the literature. Colton Burpo's NDE, the subject of the bestselling book (2010) and movie (2014), *Heaven is for Real*, is a popular example (Burpo, 2010, p. 94; Rivas et al., 2023, p. 203). Many more plausible Peak in Darien cases are included in Greyson (2010) and Rivas et al.'s (2023) compendium of NDEs (chs. 5 and 6).

Conclusion

In *The Structure to Scientific Revolutions*, Thomas Kuhn (1962) contends that anomalies to a paradigm in a scientific field can eventually result in a scientific crisis. The resolution of anomalous facts, like NDEs and the hard problem of consciousness, is presently the adoption of *ad hoc* hypotheses, but these are explanatorily inadequate. They cannot explain Sullivan's AVP or his transcendent NDE. All that is given is "promissory

materialism,” claims that the present naturalistic paradigm will one day be able to provide an adequate explanation. The ontology implied by transcendent NDEs (i.e., a transphysical self, deity, and heavenly realms), like Sullivan’s and Alexander’s, is outside the scope of naturalism²⁶ and extended naturalism.²⁷ These NDEs, and many others, indicate that further studies are needed to establish whether transcendent experiences are indeed anomalous events as they presently seem to be.

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²⁶ Some commentators claim that non-local conscious is natural. See Chalmers (1996), ch. 4. This explanation, however, does not explain the heavenly realms or celestial entities in Sullivan’s and many other transcendent experiences.

²⁷ Some claim that an immortal soul, angels, and heavenly realms are natural, what is called extended naturalism. See Mays and Mays (2020). The problem is this approach is merely a nominal change of definition, not an argument.

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MARJORIE WOOLLACOTT, PHD
Institute of Neuroscience, University of Oregon
ORCID: 0000-0001-9297-3325
e-mail: mwool@uoregon.edu

MARINA WEILER, PHD
Division of Perceptual Studies, University of Virginia
ORCID: 0000-0002-8839-2234
e-mail: marina.weiler@uvahealth.org

Near-Death Experiences: A Phenomenon Associated with Brain Filter Reduction

Abstract. The question of the nature of near-death experiences (NDEs) has been debated within the medical sciences for decades. Scientists who accept the hypothesis that consciousness is solely produced by the activity of neurons in the brain (often called physicalism or naturalism) deny the possibility that a person who has been pronounced clinically dead due to cardiac arrest accompanied by a flat EEG could perceive events occurring during resuscitation procedures. This is due to the fact that the five senses, the ascending nervous system circuitry, and, in fact, the entire cortex of the brain are not functioning at this time. However, in contrast to this hypothesis, there have been hundreds of published reports of verified perceptions within and beyond the operating room of individuals who were clinically dead. In this essay, we provide an overview of NDE research alongside these verified reports, and we present an alternative hypothesis: that the brain acts as a reducing filter for more expansive states of awareness, rather than the generator of consciousness.

Keywords: Near-death experiences (NDEs), Consciousness, Brain filter theory, Cardiac arrest, Veridical perception, Nonlocal consciousness

The mind-brain relationship remains one of the most fiercely contested topics in science and philosophy, centered on whether conscious awareness is created by physical brain matter or merely channeled through it. The dominant physicalist model views the mind as a strict byproduct of the brain, meaning that complex conscious experiences should strictly depend on active neural architecture. To challenge this view, researchers frequently point to anomalies where clear cognition persists despite compromised brain function. Examples include terminal lucidity, where severely impaired dementia patients suddenly regain full clarity right before death (Roehrs et al., 2024; Batthyány & Greyson, 2021), and veridical out-of-body experiences, where individuals accurately perceive real-world events from outside their physical forms (Weiler & Acunzo, 2025).

One of the reasons that NDEs are considered the premier phenomenon for studying the fundamental nature of consciousness is that, during cardiac arrest, blood flow to the brain completely ceases within 10 to 30 seconds. The cortex—the highly energetic region responsible for conscious awareness and sensory responsiveness—is therefore rendered completely inactive. Despite this clinical shutdown, many cardiac arrest patients are not only able to maintain awareness and undergo profoundly transformative experiences, but they also report ‘seeing’ and ‘hearing’ events they could not have otherwise known (Greyson, 2003; Long & Woollacott, 2024; Parnia, 2014; Rivas et al., 2023; Woollacott & Peyton, 2021).

One of the landmark peer-reviewed studies in this area is by Pim van Lommel and his team, published in 2001. It’s widely considered the gold standard for this kind of research, though plenty of other scientists have since published similar findings (like Schwaninger et al., 2002; Greyson, 2003; Parnia, 2014). Van Lommel and his colleagues carried out a prospective study on the veracity of NDEs during cardiac arrest, in which they enrolled everyone in a network of hospitals in the Netherlands

who had cardiac arrest and were resuscitated. The research was carefully reviewed by other scientists and published in the *Lancet* journal, which is ranked #2 of 150 journals in medicine.

They included 344 patients and reported that 12% had a NDE, and ¼ of those 'watched' and recalled verified events during their cardiac arrest with no brain activity. Later, a nurse verified one of the patient's perceptions during his cardiac arrest. She reported:

During the night shift, an ambulance brought this 44-year-old comatose man to the coronary care unit. He had been found about an hour earlier in a meadow by a passer-by. After admission, he received artificial respiration and defibrillation. When they began to intubate the patient, they realized he had dentures, so the nurse removed them and put them into the "crash car". They then continued the extensive CPR. After 90 minutes, the patient had sufficient heart rhythm and blood pressure, but was still intubated, ventilated and comatose. He was transferred to the intensive care unit and began to recover. One week later, the nurse met the patient again to give him medication. And he said: Oh, that nurse knows where my dentures are."

She was very surprised. He then said: You, you were there when I was brought into the hospital and you took my dentures out of my mouth and put them onto that car. It had all these bottles on it and there was this sliding drawer underneath and there you put my teeth. She said she was especially amazed because she remembered this happening while the man was in a deep coma and in the process of CPR. When she asked further, he said he had seen himself lying in bed, and from above had watched the nurses and doctors busy with the CPR. He was able to describe correctly in detail the small room in which he had been resuscitated as well as the appearance of the nurse and others present. At the time, he had been afraid they would

stop the CPR and he would die. And the nurse said it was true, that they had been very negative about his prognosis, because of his very poor condition when he was admitted. He said he desperately tried to make it clear to them that he was still alive and that they should continue the CPR, but he was unsuccessful. He also said he was no longer afraid of death, and 4 weeks later, left the hospital as a healthy man. (van Lommel et al., 2001)

Van Lommel concludes, at the end of this *Lancet* article: “...The thus far assumed, but never proven, concept that consciousness and memories are localized in the brain should be discussed. How could a clear consciousness outside one’s body be experienced at the moment that the brain no longer functions during a period of clinical death with flat EEG?”

Stories like the patient knowing where his dentures were stored are mind-blowing, but they make you wonder: are these verified NDEs just the tip of the iceberg above a much more prevalent phenomenon? If someone in a deep coma can have such a vivid experience, why isn’t every single cardiac arrest survivor talking about floating above their body?

As it turns out, reports of NDEs are actually relatively rare among cardiac arrest patients, occurring in approximately 6% to 20% of cases (Kovoor et al., 2024). This prevalence raises a critical question: is the rate low because NDEs genuinely do not occur in most patients, or because many patients simply lack an explicit memory of the event? Interestingly, in one study by Parnia (2014), he concludes that there may be a wider range of awareness in patients during cardiac arrest than is apparent when they are asked to remember events through explicit recall alone. Parnia proposes that there may be a “larger iceberg of memories” beyond those that patients normally access in relation to explicit recall, and that enhanced methods may be more suited for exploration of the range of awareness during these events (Parnia, 2014, 2017).

In fact, there is growing evidence that this is the case, as other studies have reported that some individuals who experienced an NDE were able to remember it only under hypnosis, but not spontaneously (Palmieri et al., 2014; Schroeter-Kunhardt, 1993). In another hypnosis-recovered NDE memory, Holden and MacHovec (1993) described a case of a man who not only recalled his anaphylactic shock NDE, but also had the entire experience replicated, including the negative physical changes, such as the sudden fall in arterial blood pressure and an increase in heart rate (up to 190 beats/min). After de-hypnotization, the man then returned to his normal state.

Woollacott (2024) has also published a case study reporting a detailed and extensively verified case of a woman who experienced an NDE during the birth of her second child and had no explicit memory of the event. She gained access to the details of her NDE only during recorded hypnotic regression sessions in the months following the NDE, including explicit memory of 14 verified events (by hospital staff and others)—experienced as unfolding again in the moment. Those verified by hospital clinicians included seeing a different doctor than her own OBGYN delivering her baby, seeing her anesthesiologist standing at the foot of the operating table, rather than at her head, identifying a doctor standing next to the EKG, who was not scheduled to be there, verifying the specific nurse who pushed the code button, the doctor who put the tracheal tube down her throat, and the nurse who started chest compressions after cardiac arrest. She also saw blood pouring out of her C-section and the doctors cutting into her side to put in another drainage tube (Woollacott, 2024).

These cases provide additional evidence supporting the hypotheses that 1) NDEs may occur in a larger portion of the population than originally verified, due to the need to use additional methods to aid recall, beyond explicit memory alone, and 2) individuals may have perceptual experiences that are not possible

according to the physiological framework in which consciousness is solely produced by activity within neurons in the brain. How can, then, this phenomenon be explained scientifically?

One hypothesis, based on naturalism or physicalism, is that these experiences are just a byproduct of brain chemistry and rewiring caused by a lack of oxygen during cardiac arrest (Martial et al., 2025). Even though the majority of scientists pull this card today and it gets passed off as the standard “scientific” explanation, this reductionist view falls incredibly short. It completely fails to explain the unique features people report during NDEs, not to mention the veridical components—the moments where patients accurately see and hear things they shouldn’t possibly know. If there are verified cases of conscious awareness during cardiac arrest, then a modification of the physicalist model of reality needs to be made.

A fascinating alternative is that consciousness is a fundamental building block of the universe, and the brain simply acts as a filter to this much wider awareness (Kelly & Kelly, 2007; Woollacott & Weiler, 2025). In fact, more than a century ago, scientists discovered that the brain filters out a substantial portion of the information available to humans and other living beings from the electromagnetic spectrum of energy within the universe. For example, William James, who is often considered the father of American psychology, proposed that the brain greatly filters our access to this enormous field of information; thus, the brain transmits only a small portion of available information to conscious awareness (Bergson, 1896/1911; James, 1902, 1976, 2007; Myers, 1903).

This concept, which is known as the filter theory, was further developed by Broadbent in the 1950s (Broadbent, 1958; Driver, 2001; Kelly & Kelly, 2007). He noted that for an individual to selectively attend to specific stimuli received through the senses, their brain must use a filtering process to extract relevant information from the overwhelming amounts of incoming

stimuli. He proposed that the brain first filters incoming information in relation to critical physical properties, such as color or spatial location. In subsequent stages, filtering processes extract features such as the meaning of words. This filtering process is critical to protect the brain's processing from being overwhelmed by continuing to exclude additional environmental input; this thus permits our focus to remain on specific critical features of environmental information (Broadbent, 1958; Driver, 2001).

In more recent years, studies have contributed to the identification of many networks in the brain that serve as attentional filters, with the function of limiting the overload of information constantly inundating the sensory systems. Among others, these include the ascending reticular activating system in the brainstem, the thalamus, and a number of areas of the cortex, including conceptual language filters and the default mode network. As the nervous system has a limited information processing capacity, these filters are crucial to an individual's effective function in daily life (Broadbent, 1958; Kelly & Kelly, 2007).

Nevertheless, a key issue being raised by many neuroscientists is whether these filters, which are effective in limiting an overload of information, may also eliminate other forms of information that contribute to a more expansive awareness, including what has been termed extrasensory or nonlocal information, which would not be perceivable through the five senses (Kelly & Kelly, 2007; Brewer et al., 2011; Woollacott & Shumway-Cook, 2020). This alternative hypothesis has much evidence to support it from many areas of research, including documenting filter reduction occurring with experiences of nonlocal perception during the ingestion of psychedelic compounds, deep meditation, mediumship, and NDEs (see Woollacott & Weiler, 2025, for a review).

To evaluate how the suppression of these cognitive filters influences human consciousness, neuroimaging studies over

the last few decades have mapped the physiological changes that occur during these deeply altered states. If the physical brain primarily functions to restrict consciousness, then down-regulating its activity should theoretically expand, rather than diminish, an individual's subjective perception. This exact prediction is borne out in the literature on deep meditation and psychedelic states, which reveals a striking paradox: as external boundaries dissolve and awareness broadens, metabolic activity in the brain's primary filtering hubs drops dramatically.

This phenomenon is particularly evident when looking at the neural correlates of these practices. Consistent research evidence on the phenomenology and neural correlates of both deep meditation and psilocybin ingestion shows significant decreases in a number of neural filters during these practices. One of the most studied is the reduction in the default mode network activity of the cerebral cortex. Activity in this network is associated with our individual identity and the roles we play in the world. Research studies have shown a direct correlation between reductions in DMN activity (specifically the medial prefrontal cortex and the posterior cingulate cortex) in meditation and psilocybin use with experiences of expansive awareness and transcendental experiences (Brewer et al., 2011; Carhart-Harris et al., 2012).

In another study of deep meditation (Hagerty et al., 2013; Yang et al., 2024) using functional MRI, researchers found reduced activation in brain visual and auditory processing regions, as well as language, somatosensory, and posterior-parietal areas during the successively deeper stages of meditation, compared to resting states. Hagerty et al. (2013) note that these results link these regions to deep absorptive meditation, associated with decreased external awareness, and a diminished sense of spatial boundaries.

However, we might ask if filter reduction associated with deep states of meditation also leads to perceptual abilities that

are beyond those of the five senses? Research indicates that it does. In a carefully designed study comparing experienced meditators and nonmeditators, Dean Radin (2008, 2015) found that meditators were able to gain information without using ordinary sensory channels. Sitting with their eyes closed outside an electromagnetically shielded, light-tight chamber, participants were asked to use their focused attention to mentally interact with a Michelson interferometer located inside the room. Specifically, they were instructed to imagine whether they could intuitively sense the presence of the photons in a specific arm of the laser beam, or to withdraw their perception and allow the photons to pass through the same area unimpeded. The participants used auditory cues to cycle between these 30-second intervals of focused concentration and relaxation. Ultimately, the results between the two groups were strikingly different. Across nine distinct sessions, the highly trained meditators demonstrated a profound ability to mentally perturb the quantum wave functions of the photons, achieving highly significant results. By contrast, the sessions involving non-meditators yielded results that did not differ from random chance.

Radin's findings provide compelling evidence that intentional mental focus can interact with the physical world without sensory mediation, demonstrating that the mind can operate nonlocally when ordinary neural noise is quieted. This brings us back to the ultimate test of the filter theory: what happens when the brain's neural activity isn't just quieted, but completely extinguished?

When comparing the reduction of neural filtering networks during NDEs to the down-regulation observed during meditation and psilocybin use, a clear distinction emerges. During cardiac arrest, all relevant neural networks are not merely diminished in activity—they are completely non-functional. From a physiological standpoint, this means the default mode

network (DMN), the brain's visual and auditory processing regions, as well as the language, somatosensory, and posterior-parietal areas of the cortex have entirely shut down.

Furthermore, neurologist Lindsey Gurin (2023) notes that during cardiac arrest, in addition to a flatline or minimal EEG activity in the cerebral cortex, there is a total loss of function in the ascending reticular activating system of the brainstem. Normally, this region acts as the brain's internal alarm clock; it transmits peripheral sensory signals to higher brain centers, arousing the cerebral cortex to an active, conscious state and preparing it to receive incoming sensory modality data. Gurin also notes that hippocampal function is completely absent during cardiac arrest, meaning the brain's structural memory networks are entirely offline.

Yet, despite having no functional neural machinery to either process sensory input or form long-term memories, patients can later recount highly lucid, detailed experiences that occurred at a time when, from a clinical perspective, they were completely unresponsive. Paradoxically, the partial reduction of activity in these exact same cortical and subcortical regions is what correlates with unitive, expansive states of awareness in deep meditation. If a partial shutdown expands consciousness by loosening the brain's filters, it stands to reason that a total clinical shutdown during cardiac arrest could open the door to the most profound, unfiltered experiences of all.

Conclusion

Taken together, the evidence surrounding extrasensory perception and transcendent experiences during NDEs—complemented by parallel findings in meditation and psilocybin research—strongly supports an alternative model of consciousness that challenges strict physicalism or naturalism. Simply

expanding the current materialist framework while retaining the assumption that physical brain tissue generates consciousness is no longer viable. Instead, the model that best accounts for these anomalies is one in which conscious awareness is considered a fundamental aspect of reality: the foundational source from which all material phenomena emerge.

The brain-filtering framework offers a coherent way to understand the extraordinary characteristics of NDEs. Under normal conditions, perceptual data are filtered through sequential processing networks in the nervous system, drastically restricting our access to a vaster field of consciousness so that we can function effectively in daily life. However, during NDEs, deep meditation, or psychedelic states, these filters are down-regulated, granting access to an expanded state of awareness. As noted throughout this essay, peer-reviewed prospective studies document that some cardiac arrest survivors spontaneously retain explicit memories of these events. These memories defy traditional physiological explanation, occurring at a time when the brain is clinically incapable of supporting awareness. Furthermore, hospital staff have repeatedly verified patient perceptions that could not have been mediated by the five senses, while an additional percentage of survivors recover these hidden NDE memories through enhanced recollection methods like hypnosis. Ultimately, the striking similarities between these states suggest that when the brain's physical filters go offline, human consciousness does not diminish—it expands.

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JEFFREY LONG, MD
Near-Death Experience Research Foundation
ORCID: 0009-0005-0977-1893
e-mail: nderf@nderf.org

Near-Death Experiences Are More Than Hallucinations Converging Evidence for Their Reality and the Need for an Extended Naturalism

Abstract. Near-death experiences (NDEs) are lucid, organized, and frequently life-transforming experiences reported in association with actual or perceived proximity to death. This paper answers the two questions posed to the conference panel directly. NDEs are not merely hallucinations. The cumulative evidence supports their reality as authentic conscious experiences and indicates that at least some NDEs include accurate perception or knowledge that cannot be adequately attributed to ordinary sensory input, memory, expectation, or inference. Five principal lines support this position: experiencers' overwhelming appraisal of the NDE as real, reinforced by memory research; enduring transformations that distinguish NDE experiencers from people who survived life-threatening events without an NDE; prospective occurrence during cardiac arrest with paradoxically heightened lucidity; specific, independently corroborated out-of-body perceptions; and recurrence of the same central pattern in association with general anesthesia. Further convergence comes from encounters with persons not known to have died, reports by very young children, and cross-cultural and historical continuity. No established explanation confined to physical brain function explains this entire conjunction. The best current interpretation is that consciousness is not wholly generated by the brain and can, under

exceptional conditions, function with a degree of independence from it. An adequate explanation therefore requires moving beyond reductive naturalism. An extended naturalism hypothesis can remain lawful and testable while treating consciousness as fundamental or irreducible and the brain as a mediator rather than its sole producer. NDEs do not by themselves prove every claim about an afterlife, but they provide substantive empirical support for survival of consciousness as a serious scientific hypothesis.

Keywords: near-death experience; consciousness; cardiac arrest; veridical perception; survival of consciousness; extended naturalism

Introduction

Near-death experiences occupy a central and unusually revealing position in the study of consciousness. They are reported in circumstances ranging from cardiac arrest and severe trauma to surgery under general anesthesia. Despite the profound physiological compromise associated with these events, NDEs are commonly described as exceptionally lucid, coherent, meaningful, and memorable. Their recurring features include an out-of-body perspective, movement through an unfamiliar environment, encounters with a light or with beings, meetings with deceased persons, a boundary or point of no return, and a decision or instruction to return. The central scientific issue is no longer whether such experiences are reported. It is whether the full body of evidence can reasonably be reduced to internally generated hallucination.

The position defended here is direct. First, NDEs are real conscious experiences, not fantasies, casual stories, or confused fragments of cognition. Second, at least some NDEs contain information that appears unavailable through ordinary physical senses, stored memory, expectation, or inference. Third, the complete pattern is not adequately explained by physical brain function alone. The evidence therefore supports the conclusion

that consciousness is not wholly produced by the brain and can, under exceptional conditions, function with a degree of independence from ordinary neural processes. This conclusion is stronger than the minimal claim that experiencers are sincere, yet it remains narrower than claiming that every detail of every NDE is objectively literal or that NDEs alone prove a complete doctrine of the afterlife.

The second panel question follows from the first. An adequate explanation of NDEs requires moving beyond contemporary reductive naturalism if that paradigm is understood to mean that consciousness and all of its information are wholly generated by local brain activity. Science itself need not be abandoned. A broader or extended naturalism can retain causation, regularity, measurement, and testability while recognizing that consciousness may be fundamental or irreducible and that the brain may mediate, constrain, or transmit consciousness rather than create it in its entirety. This paper develops the positive cumulative case for that position. It does not attempt a comprehensive review of every proposed physiological or psychological alternative, because other conference papers address those explanations.

1. What the Reality of NDEs Means

The word reality can refer to several progressively stronger propositions, and clarity about them is essential. The first proposition is that NDE reports describe experiences that were genuinely undergone rather than invented. The second is that NDEs form a coherent, recognizable, and stable class of conscious experience. The third is that at least some NDEs include accurate information that the experiencer could not normally have acquired. The fourth is that consciousness can function, at least under some conditions, with partial

independence from ordinary brain processes. The fifth is that personal consciousness survives irreversible bodily death. These propositions are related, but they are not identical.

The evidence is overwhelming for the first two propositions. The 16-item Near-Death Experience Scale provided a reliable and validated method for distinguishing NDEs from nonspecific stress responses and organic brain syndromes [1]. Later psychometric studies supported an ordered core structure and its stability across samples and time [2,3]. Memory studies found that NDE recollections contain unusually rich sensory, emotional, contextual, and self-referential characteristics; they resemble memories of perceived events more than imagined events and are often more vivid than ordinary autobiographical memories [4-6]. When the NDE Scale was readministered nearly two decades later, the accounts showed no systematic pattern of embellishment [7]. NDE research has therefore moved well beyond an anecdotal claim that people tell unusual stories. It has identified a distinctive phenomenon that can be measured, compared, and followed over time.

The term hallucination does not explain this phenomenon. A hallucination is a descriptive label applied to a perception judged not to correspond to an external event. When the reality of the experience is precisely what is at issue, simply applying that label risks assuming the conclusion that must be demonstrated. More importantly, the label offers no account of the recurring structure, heightened lucidity, stable memory, directionally consistent aftereffects, or specific corroborated information reported in some NDEs. The explanatory task is not merely to show that the brain can generate unusual imagery. It is to account for the entire conjunction of phenomenology, physiology, information, and long-term consequence.

Table 1. Evidential conclusions supported by NDE research

Evidential status	Conclusion
Established	NDEs are genuinely experienced and form a coherent, distinctive, measurable, and stable class of conscious experience.
Strongly supported	The full NDE pattern is not adequately described or explained as ordinary hallucination, dream, delirium, or cultural fabrication.
Supported in a significant subset	Some NDEs include apparently accurate information unavailable through ordinary sensory or inferential channels.
Best current explanatory inference	Consciousness is not wholly generated by the brain and can function with partial independence from ordinary brain processes.

2. Five Principal Lines of Evidence

2.1 Reality Appraisal
and the Memory Signature of Real Events

The first line of evidence concerns how NDEs are experienced and remembered. In a current NDERF (nderf.org) analysis of 1,251 respondents, 1,178, or 94.2%, stated that the experience was definitely real, and another 59, or 4.7%, judged it probably real. Thus, 98.9% regarded the NDE as definitely or probably real [32]. Subjective certainty alone cannot settle a metaphysical question, but near-unanimous reality appraisal is an important phenomenological fact. NDErs do not ordinarily describe a dim, dreamlike, or confused episode. They commonly describe an event that seemed more real than ordinary waking life.

Independent laboratory findings reinforce that appraisal. Thonnard and colleagues found that NDE memories contained more phenomenological characteristics than memories of imagined events and, in several domains, more than ordinary real-event memories [4]. Palmieri and colleagues found that NDE memories were encoded and retrieved as episodic memories rather than as imagined constructions [5]. Moore and Greyson likewise documented exceptional clarity, sensory richness, emotional intensity, and a strong sense of reality [6]. Greyson's long-term reassessment further showed that these memories remain stable rather than progressively expanding through retelling [7]. Taken together, self-appraisal, laboratory memory measures, and long-term stability support the same conclusion: NDEs are remembered as authentic events in the experiencer's life, not as transient fantasies.

2.2 Enduring Transformation Specifically Associated With the NDE

The second line of evidence is the depth, direction, and persistence of the changes that follow an NDE. Long and Woollacott compared 834 NDE experiencers with 42 individuals who had survived a life-threatening event without an NDE [28]. Both groups had confronted the possibility of death, allowing the analysis to separate the impact of the NDE from the impact of merely surviving a medical crisis. The NDE group reported substantially greater increases in belief in divinity and an afterlife, markedly reduced fear of death, greater compassion, a stronger conviction that life is meaningful, and a major re-ordering of values and priorities.

The prospective Dutch cardiac-arrest study provides longitudinal convergence. Changes in attitudes, social orientation, and spiritual outlook were evident at two-year follow-up and

continued to develop at eight years [8]. These are not brief emotional reactions at hospital discharge. They are enduring alterations in identity and worldview. Aftereffects alone do not establish the objective accuracy of every NDE perception, but they strongly establish that the NDE itself is an unusually consequential event. The controlled comparison is especially important: the transformation is associated with having the NDE, not simply with coming close to death.

2.3 Cardiac Arrest and Paradoxically Heightened Lucidity

The third line of evidence comes from prospective studies of objectively documented cardiac arrest. In the Dutch multicenter study, 62 of 344 consecutive cardiac-arrest survivors, or 18%, reported an NDE [8]. AWARE I studied 2,060 cardiac arrests and found that 9% of interviewed survivors met NDE criteria, with a smaller group reporting explicit awareness of resuscitation events [9]. In AWARE II, 28 survivors completed detailed interviews and 11 reported memories or perceptions suggestive of consciousness, including six experiences classified as transcendent recalled experiences of death [10]. These studies establish that NDEs occur in patients enrolled because a cardiac arrest happened, not because they later approached an NDE organization.

The decisive feature is not merely the presence of some mental activity. It is the reported quality of consciousness. Among 834 NDERF experiencers, 78.4% described their consciousness and alertness during the NDE as greater than normal waking consciousness, 17.0% described it as normal, and only 4.6% described it as less than normal [11]. Experiencers commonly report clear thought, stable identity, complex communication, structured sequences of events, intense but coherent emotion, and durable memory. The experiential trajectory therefore runs opposite to the simple expectation that consciousness should

become progressively degraded as cerebral function becomes profoundly compromised.

The exact moment of every NDE cannot yet be matched to a complete second-by-second map of brain function, and cardiopulmonary resuscitation can restore variable cerebral perfusion and electrical activity [10-12]. That methodological fact does not neutralize the central observation. NDE memories arise from episodes encompassing clinical unresponsiveness and severe physiological crisis, yet the consciousness later reported is usually organized and often heightened. Any complete brain-production model must explain not only why consciousness was present, but why it was frequently experienced as clearer and more integrated than ordinary waking life.

2.4 Corroborated Out-of-Body Perception

The fourth line is potentially the most direct because it concerns information acquisition rather than phenomenology alone. During some NDEs, experiencers report perceiving their own resuscitation or events at a location outside their apparent sensory range. The strongest accounts contain specific and unexpected details; are reported before feedback or disclosure; are independently corroborated by witnesses; can be linked closely to the medical crisis; and include a serious examination of ordinary vision, hearing, prior knowledge, inference, and information leakage [13,14].

AWARE I included a prospectively enrolled survivor whose detailed visual and auditory account corresponded with documented actions during resuscitation [9]. Extensively investigated reports, including the case of a physician who survived cardiac arrest, add observations that can be compared with medical records and independent witness testimony [15]. Because cases vary substantially in evidential quality, the recently

developed veridical Near-Death Experience Scale (vNDE Scale) is an important methodological advance. It grades eight features involving the timing of the investigation, the medical and physical circumstances, third-person verification, and the number and specificity of the reported perceptions [13]. This permits strong and weak claims to be distinguished rather than treating all out-of-body reports as equivalent.

These reports are not confined to a few famous cases. An AI-assisted review of NDERF accounts submitted since 2014 identified 222 reports tagged as corroborated by another person and 47 tagged as corroborated by a medical practitioner [32]. These counts are not a peer-reviewed prevalence estimate, and individual cases still require formal adjudication. Their significance is that they reveal a substantial, searchable corpus for systematic analysis. The phenomenon is large enough to be studied as a body of evidence rather than dismissed as a handful of isolated anecdotes.

No completed prospective hidden-visual-target study has yet produced a verified target identification, and that boundary should be stated plainly [10]. It does not, however, erase spontaneous cases in which specific details were reportedly corroborated. The appropriate scientific response is rigorous case-by-case analysis. A brain-generated hallucination can account for internally generated imagery; it cannot, by itself, account for accurate information that was inaccessible to the experiencer. If even a modest number of high-quality cases survive stringent review, then a theory in which all conscious information is generated locally by the brain is not an adequate complete explanation.

2.5 The Same Central Pattern During General Anesthesia

The fifth line of evidence is the recurrence of the NDE pattern in association with general anesthesia, a medical state

intentionally designed to suppress environmental awareness, responsiveness, and memory formation. In an NDERF comparison, 23 anesthesia-associated NDEs were compared with 590 NDEs occurring in other circumstances across 33 content questions. No statistically significant differences were found except that tunnel experiences were more frequent in the anesthesia-associated group [18]. Typical NDE features appeared in both groups. Seventy percent of the anesthesia-associated group reported being more conscious and alert than normal, compared with 78.7% of other NDE experiencers [11].

A published report of an NDE in a child undergoing otherwise uneventful elective surgery shows that the association is not limited to operations complicated by documented cardiac arrest [19]. Precise timing within induction, maintenance, crisis, and emergence is not always available, so anesthesia-associated cases are best understood as convergent rather than stand-alone evidence. Their importance remains substantial: the same organized, lucid, and recognizable NDE pattern appears in a setting intended to prevent ordinary conscious access and subsequent memory. The recurrence of the pattern across very different physiological circumstances argues that NDEs are not the product of one narrow mechanism tied to a single medical condition.

3. Additional Evidence That Strengthens the Same Conclusion

3.1 Encounters With Persons Not Known to Have Died

Encounters with deceased persons are common in NDEs, but the most evidentially important reports are often called Peak in Darien cases. The experiencer reports meeting someone believed to be alive and learns only after recovery that the

person had died, or encounters an unfamiliar deceased person whose identity is later established. Reviews by Kelly and Greyson describe cases in which the critical information was reportedly unavailable to the experiencer at the time [16,17]. The key issue is not the emotional force of the encounter or its agreement with a religious belief. It is unavailable knowledge. Expectation cannot explain an encounter whose defining fact was unknown. The strongest cases require securely established chronology and independent confirmation, but their information structure places them in the same evidential category as corroborated out-of-body perception: an experience contains information that the individual apparently did not possess through ordinary means.

3.2 Very Young Children Report the Same Central NDE Pattern

Very young children provide a particularly valuable test of the claim that NDEs are learned adult cultural scripts. In an NDERF comparison of 33 NDEs occurring at age five or younger with 798 NDEs occurring at age six or older, none of 34 content questions differed significantly; the mean age in the younger group was 3.8 years [11]. Morse and colleagues nonselectively interviewed 11 critically ill children and identified NDE-type memories in seven, whereas none of 29 age-matched intensive-care controls recalled the period of unconsciousness [21]. Retrospective and contemporary childhood accounts have also shown broad similarity [22,23]. Children are not free of all cultural influence, but the recurrence of the central pattern at such young ages strongly weakens the proposal that the NDE is simply copied from sophisticated adult narratives about death.

3.3 Cross-Cultural and Historical Recurrence

NDEs are not culturally identical. Culture shapes vocabulary, religious labels, imagery, and interpretation. The relevant question is whether culture creates the phenomenon or interprets a recurring underlying event. In an NDERF comparison of 25 non-Western and 809 Western NDEs, every examined element occurred in both groups, and 30 of 34 content questions showed no statistically significant difference [11]. Athappilly, Greyson, and Stevenson compared 24 accounts collected before 1975 with 24 later accounts matched on relevant variables. Only tunnel experiences increased after the modern popularization of NDEs; the other 14 of 15 features did not [24]. Studies from India and Iran likewise document recognizable NDE structures together with culturally meaningful variations [25,26], and a recent historical review emphasizes both diversity and recurrence [27].

The evidence is best represented by three levels: a deep structure that may include an out-of-body perspective, light, beings, a boundary, and return; a cultural surface that supplies language, symbols, and religious interpretation; and an individual expression shaped by biography and personal relationships. This pattern is more consistent with a common experience interpreted through culture than with culture creating the entire experience from nothing. Culture influences the account, but it does not adequately explain the existence of the recurring phenomenon.

4. Why the Evidence Is Strongest When Considered Cumulatively

The case for NDE reality is cumulative rather than dependent on one dramatic report. The five principal lines examine different

dimensions of the phenomenon. Reality appraisal and memory research address the quality and stability of the experience. Controlled aftereffect studies address its distinctive causal impact. Prospective cardiac-arrest research establishes the objective medical setting and exposes the paradox of heightened lucidity during profound physiological compromise. Corroborated out-of-body reports address information acquisition. General-anesthesia cases show that the same pattern recurs in another state designed to suppress consciousness and memory. Encounters with persons not known to have died, childhood reports, and cross-cultural continuity add independent tests of prior knowledge and cultural construction.

These observations cannot be neutralized by applying a different isolated caveat to each one and then treating the entire phenomenon as explained. A timing uncertainty during cardiac arrest does not account for a correct resuscitation detail perceived from outside the ordinary visual field. Cultural expectation does not account for an encounter with a person whose death was unknown. Residual sensory processing during some anesthetic cases does not explain the same central pattern in young children and across cultures. The limitations of one line do not automatically transfer to the others. For the cumulative case to fail, a competing explanation must account for why multiple, partly independent methods converge in the same direction.

The resulting inference is stronger than the cautious statement that NDEs merely deserve additional study. They certainly do, but the existing evidence already supports substantive conclusions. NDEs are authentic, coherent conscious experiences. They are not adequately described or explained as ordinary hallucinations. A significant subset contains apparent information anomalies that a purely internal brain event does not explain. The full pattern is therefore more consistent with a model in which consciousness is not wholly generated by

physical brain function than with a model in which the brain is its sole producer. The burden of explanation has shifted: any adequate theory of consciousness must now account for the complete NDE pattern rather than dismissing its most difficult elements.



Figure 1. Five principal lines, reinforced by three additional forms of convergence, support the conclusion that NDEs are real conscious experiences and that brain-only explanations are inadequate.

Adapted from the author's conference presentation.

5. What Are Near-Death Experiences?

At the descriptive level, NDEs are exceptional, coherent conscious experiences arising in association with actual proximity to death. They have a recognizable but variable phenomenology, are remembered with unusual vividness, and often produce durable changes in values, relationships, and fear of death. That description is firmly established and does not depend on a particular metaphysical commitment.

At the explanatory level, the cumulative evidence supports a stronger answer. NDEs are best understood as episodes in

which consciousness functions without the physical brain and the ordinary senses.

This interpretation does not require that every image or symbol in every NDE be a literal description of an external realm. It does imply that the experience cannot be reduced to disordered neural activity alone. Because NDErs ultimately survive, NDEs by themselves cannot directly observe permanent consciousness after irreversible biological death. That logical limitation should not be confused with an absence of evidence for survival.

6. Why an Adequate Explanation Requires Extended Naturalism

The second panel question can therefore be answered affirmatively: an adequate explanation requires going beyond contemporary reductive naturalism. Methodological naturalism - the commitment to observation, comparison, regularity, measurement, and possible refutation - remains indispensable. Reductive naturalism makes the additional metaphysical claim that consciousness is wholly produced by local physical brain processes and cannot obtain information or continue apart from them. It is that stronger claim, not the scientific method, that the NDE evidence places under sustained pressure.

The distinction is crucial. If the identity of mind and brain is assumed in advance, every NDE must be classified as a brain-generated event regardless of its lucidity or informational content. That is not an empirical conclusion; it is a boundary imposed before the evidence is evaluated. The enduring explanatory gap between objective neural description and first-person experience already leaves the ontology of consciousness open [29,30]. NDEs sharpen that problem by showing that unusually organized and sometimes informa-

tion-bearing consciousness can be reported during evident unconsciousness.

An extended naturalism is the minimum framework broad enough to encompass the evidence. It must allow four propositions. First, consciousness may be a fundamental or irreducible feature of reality rather than merely an output of neural computation. Second, the brain may act as an interface, filter, constraint, or transmitter of consciousness in addition to shaping its ordinary contents. Third, consciousness may under exceptional conditions acquire information independently of the ordinary senses. Fourth, personal consciousness may continue to function when its usual neural expression is profoundly impaired. These propositions do not suspend causation or natural law. They expand the inventory of what nature contains.

How far must naturalism be extended? Far enough to abandon the assumption that all consciousness and all information available to a person must be generated locally by the functioning brain. It need not be extended into concluding a miracle as a substitute for explanation, or immunity from testing. Prospective predictions remain possible: veridical perceptions should correspond to objectively recorded events; the timing of experience should increasingly be related to physiological markers; strong cases should receive higher scores from blinded raters using explicit criteria; and null results must count against particular models. The vNDE Scale, controlled targets, multimodal monitoring, and preregistered adjudication make such testing increasingly feasible [10,13,20].

A supernaturalist interpretation is compatible with many NDE accounts, especially their spiritual and transcendent dimensions, but may not be required by the empirical evidence. A reality in which consciousness is fundamental, nonlocal, and capable of persistence beyond ordinary brain function would already explain why reductive physicalism fails without ceasing to be a scientific account of nature. The most defensible present

conclusion is therefore not metaphysical neutrality between all possibilities. It is that reductive naturalism is inadequate, extended naturalism is required, and the precise form of that extension remains an open empirical question [29,31].

7. A Research Program Equal to the Evidence

The next advances should test the strongest implications of this framework with greater temporal and evidential precision. High-value studies should enroll patients prospectively if at all possible; preserve the first narrative before feedback from relatives or clinicians; interview witnesses independently; and integrate anesthetic records, resuscitation logs, cerebral oximetry, electroencephalography, hemodynamic measurements, and time-stamped audiovisual records. Concealed visual targets and standardized auditory stimuli should continue, with target visibility and equipment availability documented for every case rather than assumed.

Claims of veridical perception should be graded by explicit criteria, blinded where possible, and adjudicated before theoretical interpretation. Peak in Darien reports require time-stamped documentation preceding disclosure of the death. Pediatric and cross-cultural studies should use developmentally and linguistically appropriate methods. The growing NDERF corpus of reports with claimed witness or medical corroboration offers a practical foundation for systematic case selection and independent review [32]. Preregistration, multicenter collaboration, transparent reporting of null results, and privacy-protected access to source materials can convert a large observational literature into progressively stronger cumulative evidence [12,13].

Conclusion

Near-death experiences are more than hallucinations. The evidence is exceptionally strong that they are genuinely experienced, coherent, stable, and distinctive states of consciousness. The evidence is also substantial that at least some NDEs include accurate perception or knowledge unavailable through ordinary sensory and inferential routes. Reality appraisal, memory characteristics, enduring transformation, prospective cardiac-arrest research, paradoxically heightened lucidity, corroborated out-of-body perception, general-anesthesia cases, encounters with persons not known to have died, childhood recurrence, and cross-cultural continuity converge on the same conclusion: the full NDE pattern is not adequately explainable by physical brain function alone.

The best current interpretation is that consciousness is not wholly produced by the brain and can function, during exceptional circumstances, with a degree of independence from it. Contemporary reductive naturalism is therefore too narrow. An extended naturalism that treats consciousness as fundamental or irreducible, and the brain as mediator rather than sole producer, is the minimum framework capable of accommodating the evidence. Such a framework remains scientific because it can generate testable predictions and be revised by future findings. Supernaturalism may be compatible with NDEs, but it is not required to recognize what the data already show.

NDEs do not by themselves prove every claim about an afterlife, but they provide serious empirical evidence for the survival of consciousness and make that hypothesis scientifically legitimate. The responsible conclusion is no longer simply that NDEs should not be dismissed. It is that any adequate science of consciousness must explain them in full - including the evidence that consciousness can remain lucid, organized,

and information-bearing when its ordinary biological basis is profoundly compromised.

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Author disclosure

The author founded the Near-Death Experience Research Foundation and is an author or coauthor of several sources cited in this paper. Reference 32 reports current, unpublished NDERF database analyses and should be interpreted as preliminary until formally published.

PIM VAN LOMMEL, CARDIOLOGIST

Department of Cardiology, Rijnstate Hospital, Arnhem, The Netherlands

e-mail: pimvanlommel@gmail.com

The Continuity of Consciousness

A concept based on scientific studies on Near-Death Experience

Abstract. In this article the concept of the continuity of consciousness will be described, mainly based on recent scientific research on near-death experiences (NDE), but also on other experiences of enhanced consciousness. Since the publication of several prospective studies on NDE in survivors of cardiac arrest, with strikingly similar results and conclusions, the phenomenon of the NDE can no longer be scientifically ignored. The NDE seems to be an authentic experience which cannot be simply reduced to imagination, fear of death, hallucination, psychosis, the use of drugs, or oxygen deficiency. According to these prospective studies, the current materialistic view of the relationship between consciousness and the brain is too restricted for a proper understanding of this phenomenon. There are good reasons to assume that our consciousness does not always coincide with the functioning of our brain: enhanced consciousness can sometimes be experienced separately from the body, and so it is not limited to our brain. Our consciousness seems to be non-local, beyond time and space, and our brain facilitates rather than produces the experience of consciousness. It is evident that these findings are important for our concepts of life and death, because of the almost unavoidable conclusion that at the time of physical death consciousness will continue to be experienced in another realm, one that encompasses past, present, and future. Death is only the end of our physical body. Without a body we can still have conscious experiences, we are still conscious beings. In this article examples will be given of experiences of non-local consciousness beyond the brain, for instance during a period when the brain is either

non-functioning or malfunctioning. Other experiences of non-local consciousness will also be mentioned, including contact with the consciousness of deceased relatives during special states of consciousness. The primacy of consciousness will also be discussed. All these findings make the concept of the continuity of consciousness highly probable. Based on these ideas it seems obvious that death, like birth, may be a mere passing from one state of consciousness into another.

Keywords: near-death experience, cardiac arrest, mind-brain relationship, non-local consciousness, continuity of consciousness, primacy of consciousness.

Introduction.

I will discuss in this article some new ideas about the mind-brain relationship, based on recent scientific research on near-death experiences in survivors of cardiac arrest. A near-death experience (NDE), or an experience of enhanced consciousness during a period of apparent coma, still gives rise to many unbelieving and critical questions, especially by physicians and neuroscientists. Because how can it scientifically be explained that people can have clear memories from a period of obvious unconsciousness? Or how is it possible that permanent life changes occur after a cardiac arrest of only two minutes? If one has not experienced an NDE himself, it seems impossible to really understand the impact and the life changing after-effects of this overwhelming conscious experience. The existing worldview has radically changed. Quote from someone with an NDE (Van Lommel, 2010): *'You can be physically dead but your mind lives on. Only one thing matters: your attitude toward other people. I accept life as it is, and I am no longer afraid of death. I will not only describe the changes in consciousness during and after an NDE, but above all I want to discuss my ideas about the possible relationship between consciousness and the brain.*

As a cardiologist I had the privilege to meet many patients who were willing to share their NDE with me. The first time this happened was in 1969. We mostly do not realize anymore that about 50 years ago all patients with cardiac arrest died because modern resuscitation techniques like defibrillation and external chest compression were not yet available. So, before 1967 nobody survived a cardiac arrest. In 1969 a patient with an acute myocardial infarction suffered a cardiac arrest in the coronary care unit. After two electric shocks and a spell of unconsciousness lasting some four minutes, the patient regained consciousness, much to the relief of the nursing staff and attendant doctor. That attendant doctor was me. I had started my cardiology training that year. Following the successful resuscitation everyone was pleased, except the patient. To everyone's surprise he was extremely disappointed. The patient told me about a tunnel, about colours, about a light, about a beautiful landscape, and about music. He was extremely emotional. The term near-death experience did not yet exist, nor had I ever heard of people having any recollection of the period of their cardiac arrest. Whilst studying for my degree, I had learnt that such a thing is in fact impossible: being unconscious means not being aware, and that applies to people suffering a cardiac arrest and patients in coma. In the event of a cardiac arrest, patients are unconscious; they have stopped breathing and have no palpable pulse or blood pressure. I have never forgotten this event, but I did not do anything with it at that very moment, because my focus in those years was my specialisation in cardiology, besides having a family with two young children.

And in that time, I did not know that in human history the same experiences have been told, in many cultures, in many religions and in all times, as was already shown in 1480 in the painting by the Dutch painter Hieronymus Bosch, showing deceased people escorted through a tunnel to the light. Only years later, in 1975, Raymond Moody first described the so-

called “near-death experiences” (Moody, 1975), but only in 1986, now forty years ago, I read about these experiences in the book by George Ritchie entitled “Return from Tomorrow,” which relates what he experienced during a period of clinical death of 9-minutes duration in 1943 during his medical study (Ritchie, 1978). After reading this book I started to interview my patients who had survived a cardiac arrest. And to my great surprise, within two years 12 patients out of 50 survivors of cardiac arrest in the past told me about their NDE. However, according to our current medical concepts, it is not possible to experience consciousness during a cardiac arrest, when circulation and breathing have ceased! I grew up in an academic environment in which I had been taught that it was obvious that consciousness was the product of a functioning brain. I was always told that it is simply impossible to be conscious or to have memories at such a moment because all brain functions have ceased. So, for me it all started with scientific curiosity, because the phenomenon of near-death experience raised several fundamental questions: How and why does an NDE occur? How does the content of an NDE come about? Why does a person’s life change so radically after an NDE? I was unable to accept most of the answers to these questions because they seemed incomplete, incorrect or unfounded. Important questions for me were also: How is consciousness related to the integrity of brain function? Is it possible to gain insight in this relationship? Is there a biological basis of consciousness anyway? And is it possible to speak of a beginning of our consciousness and will our consciousness ever end? I realize that my conclusions in this article will be new or unexpected for most neuroscientists, and that they will not always be in conformity with the currently widely accepted materialistic paradigm in western science.

But first: what is an NDE? Some people who have survived a life-threatening crisis report an extraordinary conscious

experience. An NDE can be defined as the reported memory of a range of impressions during a special state of consciousness, including several 'universal' elements such as an out-of-body experience, positive feelings, seeing a tunnel, a light, deceased relatives, a life review, or the conscious return into the body. Many circumstances are described during which NDE are reported, such as cardiac arrest (clinical death), shock after loss of blood (complicated childbirth), coma following traumatic brain injury or stroke, near-drowning (children!) or asphyxia, but also NDE-like experiences are reported in serious diseases not immediately life-threatening, during severe depression, during imminent accidents (fear of death), isolation or meditation, or even without any obvious reason. NDE-like experiences can also occur during the terminal phase of illness and are called deathbed visions or end-of-life experiences (van Lommel, 2010). So apparently you don't always need a non-functioning brain to report an NDE. The NDE is transformational, always causing profound changes of life-insight, the loss of fear of death, and enhanced intuitive sensitivity. Therefore, these kinds of experiences are also called spiritual transformative experiences (STE).

Near-death experiences (NDE) occur with increasing frequency because of improved survival rates resulting from modern techniques of resuscitation and from better treatment for patients with cerebral trauma. The content of an NDE and the effects on patients seem similar worldwide, across all cultures and all times (van Lommel, 2010). However, the subjective nature and absence of a frame of reference for this experience lead to individual, cultural, and religious factors determining the vocabulary used to describe and interpret this experience: children and adults, Christians and atheists, Muslims and Buddhists, they all use different words from their own religion, culture and tradition. Surprisingly, according to a recent survey in 2026 in the USA, about 23 % of the total

population in the western world should have experienced an NDE! (IANDS, 2026) So, about 8 million people in Poland, about 80 million people in the USA, and about 170 million people in Europe must have had an NDE! Now why do we physicians hardly ever hear a patient talk about his NDE? Patients are so reluctant to share their experience with others by all the negative responses they get. Patients must feel that you trust them, that you can listen without any comment or prejudice. But for most physicians the NDE is still an incomprehensible and unknown phenomenon. Once a conference was held about NDE in a university hospital, with more than 300 persons in attendance. At the end of the conference, after several lectures about NDE, a man stood up and said: *“I am a cardiologist for more than 25 years, and I have never heard such absurd stories. This is total nonsense. I don’t believe one word of it”*. Then another man got up in the audience and said: *“I am one of your patients. I have had an NDE during cardiac arrest, and you would be the last one I would ever tell”*.

Until recently there was no prospective and scientifically designed study to explain the cause and content of an NDE, all studies had been retrospective and very selective with respect to patients. Based on these incomplete retrospective studies some believed the experience could be caused by physiological changes in the brain because of lack of oxygen (cerebral anoxia), other theories encompass a psychological reaction to approaching death, hallucinations, dreams, side effect of drugs, or just false memories.

The Dutch prospective study on NDE

So, in 1988 we started a prospective study of 344 consecutive survivors of cardiac arrest in ten Dutch hospitals with the aim to investigate the frequency, the cause and the content of an

NDE, and our study was published in *The Lancet* in December 2001 (Van Lommel et al., 2001). We wanted to know if there could be a physiological, pharmacological, psychological, or demographic explanation why people experience enhanced consciousness during a period of cardiac arrest. We did a short, standardised interview with sufficiently recovered patients within a few days of resuscitation and asked whether they could remember the period of unconsciousness, and what they recalled. We additionally performed a longitudinal study.

We studied patients who survived cardiac arrest, because this is a well-described life-threatening medical situation, which is also called clinical death. The definition of clinical death was used for the period of unconsciousness caused by lack of oxygen in the brain due to the arrest of circulation and breathing that happens during cardiac arrest in patients with an acute myocardial infarction. These patients will ultimately die from irreversible damage to the brain if cardio-pulmonary resuscitation (CPR) is not initiated within 5 to 10 minutes. It is the closest model of the process of dying.

We found that 282 patients (82%) had no recollection of the period of cardiac arrest, of their period of unconsciousness. However, 62 patients (18%) reported some recollection of the time of clinical death. Of these patients 41 patients (12%) had a core experience with a score of 6 or higher, and 6% had a superficial NDE. And all well-known elements were reported, like awareness of being dead, positive emotions, an out-of-body experience, moving through a tunnel, communication with “the light”, an observation of colours or of a celestial landscape, a meeting with deceased relatives, a life review, and the experience of a border. The more elements were reported, the deeper the experience was.

The question was: what might distinguish the small percentage of patients who report an NDE from those who do not? We found to our surprise that neither the duration of

cardiac arrest (2 minutes or 8 minutes) nor the duration of unconsciousness (5 minutes or three weeks in coma), nor the need for intubation in complicated CPR, nor a short induced cardiac arrest in electrophysiological stimulation (EPS) had any influence on the frequency of NDE. So, the degree or gravity of the lack of oxygen in the brain (anoxia) appeared to be irrelevant. And so, a physiological explanation for NDE like anoxia could ultimately be excluded with certainty. Moreover, all patients had been unconscious due to anoxia of the brain. Neither could we find any relationship between the frequency of NDE and administered drugs, fear of death before the arrest, nor foreknowledge of NDE, gender, religion (being a Christian, Muslim or atheist did not matter at all), nor education (Van Lommel et al., 2001).

We additionally performed a longitudinal study with taped interviews 2 and 8 years following the cardiac arrest of all late survivors with NDE, along with a matched control group of survivors of cardiac arrest who did not report an NDE. This study was designed to assess whether the loss of fear of death, the transformation in attitude toward life and the enhanced intuitive sensitivity is the result of having an NDE or just the result of the cardiac arrest itself. This had never been studied before in a prospective design. The NDE turned out to be a life changing experience, because only patients with an NDE did show this typical transformation. They were less afraid of death and had a stronger belief in an afterlife. We saw in them a greater interest in spirituality and questions about the purpose of life, as well as a greater acceptance of and love for oneself in combination with a feeling of oneness with others, and with nature. The conversations we had in our longitudinal study revealed that people, often to their own amazement and confusion, had acquired enhanced intuitive feelings after an NDE. Or, as many of them put it, they had acquired 'paranormal gifts.' This enhanced intuition is based on interconnectedness

with the consciousness of others and is independent of time (inner knowing of future events or having prognostic 'dreams') and independent of distance (the sense of knowing about an incoming phone call, and of pain, illness or upcoming death of people, which usually proves to be accurate). The sudden occurrence of this enhanced intuition can be quite problematic, as people suddenly have a very acute sense of others, which can be extremely intimidating. As someone told me: *'I couldn't even talk about it, or I would have been committed to an institution.'* Finally, it is quite remarkable and a surprising and unexpected finding to see a cardiac arrest lasting just a few minutes give rise to such a lifelong process of transformation. However, the integration and acceptance of an NDE is a process that may take many years because of its far-reaching impact on people's pre-NDE understanding of life and value system. It is a real spiritual trauma, because despite the mostly positive experience the NDE is also a traumatic event. There is hardly any acceptance by doctors, nurses, family or partner (with a divorce rate of more than 70%), which makes the process of acceptance and integration very difficult, and this process will take many, many years, with strong feelings of depression, homesickness and loneliness, but the longer interval between NDE and interview, the more positive changes are usually reported, and integration of the NDE will follow at last (Van Lommel, 2010).

International prospective studies on NDE.

In four prospective studies with identical study design, our Dutch study (the only study with statistical analysis) (Van Lommel et al., 2001), one study from the USA (Greyson, 2003), and two studies from the UK (Parnia & Fenwick, 2002, Satori, 2006), about the same percentage of NDE was found in a total of 562

patients who survived cardiac arrest. And all authors conclude that no one physiological or psychological model by itself could explain all the common features of NDE. Bruce Greyson writes in his comment that the paradoxical occurrence of heightened, lucid awareness and logical thought processes during a period of impaired cerebral perfusion raises perplexing questions for our current understanding of consciousness and its relation to brain function. A clear sensorium and complex perceptual processes during a period of apparent clinical death challenge the concept that consciousness is localized exclusively in the brain (Greyson, 2003). Sam Parnia and Peter Fenwick (Parnia & Fenwick 2002) write that the data from several NDE studies suggest that the NDE arises during unconsciousness, and this is a surprising conclusion, because when the brain is so dysfunctional that the patient is deeply comatose, those cerebral structures, which underpin subjective experience and memory, must be severely impaired. Complex experiences such as are reported in the NDE should not arise, nor be retained in memory. Such patients would be expected to have no subjective experience at all (Parnia et al., 2001). Penny Sartori concludes that, according to mainstream science, it is quite impossible to find a scientific explanation for the NDE if we “believe” that consciousness is only a side effect of a functioning brain. The fact that people report lucid experiences in their consciousness when brain activity has ceased is, in her view, “difficult to reconcile with current medical opinion.” (Sartori, 2006). So, all scientists who performed prospective studies on NDE came to the same conclusion: lack of oxygen by itself cannot explain the cause and content of an NDE. And this view is also supported by the fact that an NDE can be reported by people not only during life threatening illnesses but also during fear of death, depression, or meditation (Greyson et al., 2009, Carter, 2010, Van Lommel, 2010).

With lack of evidence for any other theories for NDE, the concept thus far assumed but never scientifically proven, that consciousness and memories are produced by large groups of neurons and are localized in the brain should be discussed. How could a clear consciousness outside one's body be experienced at the very moment that the brain no longer functions during a period of clinical death, even with a flat-line EEG? Scientific study of NDE pushes us to the limits of our medical and neurophysiological ideas about the range of human consciousness and the mind-brain relation. An NDE might be considered as a changing state of consciousness, based on the theory of continuity of consciousness, in which memories, identity, and cognition, with emotion, function independently from the unconscious body, and retain the possibility of extra-sensory perception. Obviously, during NDE enhanced consciousness is experienced independently from the normal body-linked waking consciousness (Van Lommel, 2010).

Some elements of an NDE

Before I discuss in greater detail some neurophysiological aspects of brain function during cardiac arrest, I would like to reconsider certain elements of the NDE.

First the **Out-of-Body Experience**. In this experience people have veridical perceptions from a position outside and above their lifeless body. Even people who are blind from birth can report a veridical OBE during their NDE (Ring & Cooper, 1999). NDE-ers have the feeling that they have apparently taken off their body like an old coat and to their surprise they appear to have retained their own identity with the possibility of perception, emotions, and a very clear consciousness. This out-of-body experience is scientifically important because doctors, nurses, and relatives can verify the reported perceptions, and

they can also corroborate the precise moment the NDE with OBE occurred during the period of CPR. In two reviews with a total of more than 200 corroborated reports of potentially verifiable out-of-body perceptions it was found that about 98 percent of the reported OBE's were completely accurate: through verification it was proven that all reported perceptions during cardiac arrest, coma, or general anaesthesia were about details that really had happened (Holden, 2009, Rivas et al., 2016). Based on these veridical aspects an OBE can, by definition, not be a hallucination, nor a delusion or an illusion, despite some studies in which induced illusions were called an OBE (Blanke & Metzinger, 2008). Moreover, one needs a functioning brain to have a hallucination, delusion, or illusion.

And this is the report of a nurse of a Coronary Care Unit (van Lommel et al., 2001). Quote: *"During night shift an ambulance brings in a 44-year-old cyanotic, comatose man into the coronary care unit. He was found in coma about 30 minutes before in a meadow. When we go to intubate the patient, he turns out to have dentures in his mouth. I remove these upper dentures and put them onto the 'crash cart.' Only after about an hour and a half the patient has sufficient heart rhythm and blood pressure, but he is still ventilated and intubated, and he is still comatose. He is transferred to the intensive care unit to continue the necessary artificial respiration for one week. After more than a week in coma do I meet again with the patient, who is by now back on the cardiac ward. The moment he sees me he says: 'O, yes, you, you know where my dentures are.' I am very, very surprised. Then the patient elucidates: 'Yes, you were there when I was brought into hospital and you took my dentures out of my mouth and put them onto that cart, it had all these bottles on it and there was this sliding drawer underneath, and there you put my teeth.' I was especially amazed because I remembered this happening while the man was in deep coma and in the process of CPR. It appeared that the man had seen himself flying in bed, that he had perceived from above how nurses and doctors had been busy with the CPR. He was also able to describe*

correctly and in detail the small room from above in which he had been resuscitated (where he was admitted in coma, and had left in coma !!), as well as the appearance of those present like myself.

The ‘Holographic’ Life Review. During this life review the subject feels the presence and renewed experience of not only every act but also every thought from one’s past life, and one realizes that all of it is an energy field which influences oneself as well as others. All that has been done and thought seems to be significant and stored. Because one is connected with the memories, emotions and consciousness of another person, you experience the consequences of your own thoughts, words and actions to that other person at the very moment in the past that they occurred (*interconnectedness*). Patients survey their whole life in one glance; time and space do not seem to exist during such an experience (*non-locality*) They are instantaneously taken to where they concentrate, and they can talk for hours about the content of the life review even though the resuscitation only took minutes (Van Lommel, 2004). Quote: *“All of my life up till the present seemed to be placed before me in a kind of panoramic, three-dimensional review, and each event seemed to be accompanied by a consciousness of good or evil or with an insight into cause or effect”. “Not only did I perceive everything from my own viewpoint, but I also knew the thoughts of everyone involved in the event, as if I had their thoughts within me. This meant that I perceived not only what I had done or thought, but even in what way it had influenced others, as if I saw things with all-seeing eyes. And so even your thoughts are apparently not wiped out! And all the time during the review the importance of love was emphasised. Looking back, I cannot say how long this life review and life insight lasted, it may have been long, for every subject came up, but at the same time it seemed just a fraction of a second, because I perceived it all at the same moment. Time and distance seemed not to exist. I was in all places at the same time, and sometimes my attention was drawn to something, and then I would be present there.”*

Also, a **Preview or Flash-Forward** can be experienced, in which both future images from personal life events as well as more general images from the future occur. People feel like they can see a part of life that is yet to come. And again, it seems as if time and space do not exist during this preview (*non-locality*). The reports of the verifiable future events inevitably raise questions about free will and the extent to which people can determine their own future (Van Lommel, 2004). Quote: *'... and in a flash I saw the rest of my life. I could see a large part of my future life; taking care of my children; my wife's illness; everything that would happen to me, both in and out of the workplace. I could see it all. I foresaw my wife's death and my mother's passing. One day I wrote down all the things I saw back then: over the years I've been able to tick them all off. For instance, I saw my wife on her deathbed, wrapped in a white shawl, just like the one she was given by a friend of hers some days before she died ...'*

A Meeting with the Consciousness of Deceased Relatives.

It is also possible to meet with the consciousness of deceased relatives (*interconnectedness*), even when these persons were unknown, or when it was not known that these people had died. So apparently a kind of personal identity ('Self') is still accessible in the non-physical realm. (Van Lommel, 2010). Quote: *"During my cardiac arrest I had an extensive experience (...) and later I saw, apart from my deceased grandmother, a man who had looked at me lovingly, but whom I did not know. More than 10 years later, at my mother's deathbed, she confessed to me that I had been born out of an extramarital relationship, my father being a Jewish man who had been deported and murdered during the second World War, and my mother showed me his picture. The unknown man that I had seen more than 10 years before during my NDE turned out to be my biological father."*

Conscious Return into the Body. Some patients can describe how they consciously returned into their body, mostly through the top of the head, after they had come to understand that

“it wasn’t their time yet” or that “they still had a task to fulfil.” The conscious return into the body is experienced as something very oppressive. They regain consciousness in their body and realize that they are “locked up” in their damaged body, meaning again all the pain and restriction of their disease (Van Lommel, 2004). Quote: “When I came to in my body it was dreadful, so dreadful. The experience had been so beautiful that I didn’t want to come back. I had wanted to stay there. and yet I came back. From that moment it was a real struggle to live my life inside my body, with all the limitations I experienced at the time. But later I realized that this experience was in fact a blessing, for now I know that the mind and body are separate and that there’s life after death.”

Losing the Fear of Death. About all people who have experienced an NDE lose their fear of death (Van Lommel, 2010). Quote: “It is outside my domain to discuss something that can only be proven by death. For me, however, this blessing experience was decisive in convincing me that consciousness lives on beyond the grave, and I know now for sure that body and mind are separated. Death was not death, but another form of life.”

No Brain Activity left during Cardiac Arrest.

So, we must come to the surprising conclusion that in our and other prospective studies during cardiac arrest all these reported elements of an NDE were experienced during a transient functional loss of all functions of the cortex and of the brainstem, with a flat-line EEG. But how do we know that the EEG, the registration of the electrical activity of the cortex, is flat in those patients with cardiac arrest, and how can we study this? Through many studies with induced cardiac arrest, in both humans [like in threshold testing of ICD’s] and also in animal models, cerebral function has been shown to be severely compromised during cardiac arrest, with complete cessation of

cerebral flow within one second (Gopalan et al., 1999), causing the clinical findings of the sudden loss of consciousness, the loss of breathing (apnoea), the loss of all body reflexes (cortex), but also the loss of all brainstem reflexes like the gag reflex, the corneal reflex, and fixed and dilated pupils (van Lommel, 2010). The electrical activity in the cerebral cortex [but also in the deeper structures of the brain in animals (Brantson et al. 1984, Gua et al., 1995)] has been shown to be absent after 10-20 seconds (a flat-line EEG) (de Vries et al., 1998, Clute & Levy, 1990, Losasso et al., 1992, Parnia & Fenwick, 2002). In an acute myocardial infarction, the duration of cardiac arrest is always longer than 20 seconds. So, all 562 survivors of cardiac arrest in the 4 prospective studies must have had a flat-line EEG, and still about 20% of those patients reported an NDE. And because of the occasional and verifiable out-of-body experiences, we know that the NDE must happen during the period of unconsciousness, and not in the first or last seconds of cardiac arrest.

Flat-line EEG during cardiac arrest. See Figure 1.

It is extremely rare that a simultaneous registration of the electrical activity of the heart (ECG) and of the cortex of the brain (EEG) during cardiac arrest could be monitored. A patient was referred because of sudden periods of unconsciousness. During this registration (of 60 seconds, each strip is 10 seconds) a spontaneous cardiac arrest (asystole) with loss of consciousness occurred. Due to the lack of oxygen in the brain (anoxia) the EEG starts to change after about 8 seconds, and after 16 seconds the registration shows a flat-line EEG. About 30 seconds after the onset of cardiac arrest a short period of ventricular tachycardia (VT) arises for 4 seconds, after which normal heart rhythm gradually recovers, and the EEG starts to

normalize sometime later. The patient received a pacemaker, after which he remained complaint-free.

Unfortunately, the conclusion about conscious experiences during a flatline EEG is often called impossible and unscientific. The quite often proposed objection that a flat-line EEG does not rule out any brain activity, because it is mainly a registration of electrical activity of the cerebral cortex, misses the mark. The issue is not whether there is any brain activity of any kind whatsoever, but whether there is measurable brain activity of the specific form regarded by contemporary neuroscience as the necessary condition of conscious experience, with visible activities in many neural centres, the so-called global neural workspace (Cho et al., 1997, Dehaene et al., 1998). Experiencing consciousness is based on the temporal dynamics of ongoing and constantly changing visible and measurable brain activity, with functional connectivity and global integration of information between long-distant cortical regions, and it relates to a dynamic process of self-sustained, coordinated whole brain-scale activities. (Massimini et al., 2005, Alkire & Miller 2005, Alkire et al., 2006) It has been proven that there is no such specific and dynamic brain activity at all during cardiac arrest!!

Summary

For me it was indeed a scientific challenge to discuss new hypotheses that could explain the possibility to have clear and enhanced consciousness during a transient period of a non-functional brain, with memories, with Self-identity, with cognition, with emotion, with the possibility of perception out and above the lifeless body, to explain the reported interconnectedness with the consciousness of other persons and of deceased relatives, to explain the possibility to experi-

ence instantaneously and simultaneously (*non-locality*) a review and a preview of someone's life in a dimension without our conventional body-linked concept of time and space, where all past, present and future events exist, and even to explain the experience of the conscious return into the body (Van Lommel, 2021)

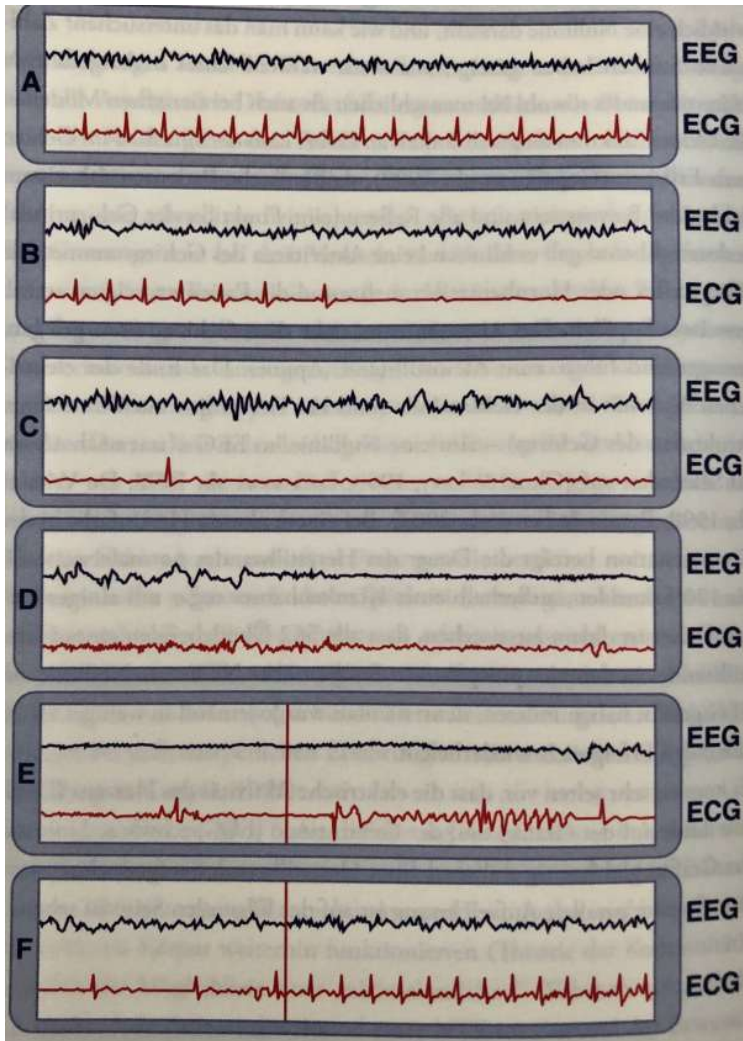


Figure 1

Non-local Consciousness

My book '*Eindeloos bewustzijn*' ('*Endless Consciousness*') was published in 2007 in the Netherlands, it is now in its 32nd print, and it was translated into the English language in 2010 as '*Consciousness beyond Life*'. (Van Lommel, 2010) It is a worldwide bestseller, now being published in twelve languages, and with more than 400.000 copies sold. In some of my articles (Van Lommel, 2004, Van Lommel, 2006, Van Lommel, 2013, Van Lommel, 2021) and in my book (Van Lommel, 2010) I have written that based on prospective studies on NDE and on recent findings in neurophysiological research, and in analogy with concepts from quantum physics, our consciousness cannot be localised in a certain time or space. This is called non-local consciousness, because almost all the reported aspects of consciousness during cardiac arrest seem to behave as quantum-like phenomena, like non-local interconnectedness (entanglement), and beyond time and space (Van Lommel, 2013). In this concept our endless or non-local consciousness with declarative memories finds its origin in, and is stored in a non-local realm as wave-fields of information, and the brain only serves as a relay station for parts of these wave-fields of consciousness to be received into or as our waking consciousness. The function of the brain can therefore be compared to a transceiver, a transmitter/receiver, or interface, exactly like the function of a computer. Different neuronal networks function as interface for different aspects of our consciousness, and the function of neuronal networks should be regarded as receivers and conveyors, and not as retainers of consciousness and memories. In this concept, nonlocal consciousness is not rooted in the measurable domain of physics, our manifest world. The immeasurable can never be measured in our physical world. However, the physical aspect of consciousness, which originates from the wave aspect of our consciousness

through collapse of the wave function (“objective reduction”) can be measured by means of neuro-imaging techniques like EEG, fMRI, and PET-scan, which are called neural correlates of consciousness. With this concept of non-local consciousness, which is also the concept of the continuity of consciousness, all reported elements of an NDE during cardiac arrest could be explained (Van Lommel, 2013).

In trying to understand this concept of interaction between non-local consciousness and the material body and brain, it seems appropriate to compare it with modern worldwide communication. There is a continuous exchange of objective information by means of electromagnetic fields for radio, TV, mobile telephone, or (laptop) computer. At this very moment you are invaded by hundreds of thousands of telephone calls, and hundreds of radio and TV programmes, but you become only aware of these electromagnetic informative fields when you use your mobile telephone or by switching on your radio, TV or laptop. What you receive is neither inside the instrument, nor in the components, but thanks to the receiver, the information from the electromagnetic fields (‘the cloud’) becomes observable to your senses and hence perception occurs in your consciousness. Internet with more than a billion websites can be received at about the same moment in the USA, in Europe and in Australia, and is obviously not located inside your laptop nor is it produced by it. Information from internet is always and everywhere available because it is stored in the ‘cloud’. The ‘cloud’ could be compared with non-local consciousness (Van Lommel, 2021).

Materialist dogma

There are still many materialist scientists who don't believe in these findings and conclusions. So, I would like to quote

Robert Oppenheimer (1904-1967), the famous American theoretical physicist, who has said (Oppenheimer, 1949). Quote: *'There is no place for dogma in science. The scientist is free, and must be free to ask any question, to doubt any assertion, to seek for evidence, to correct any errors.'* But most scientists still don't believe in the possibility to experience an enhanced consciousness during a period of a non-functioning brain, because they cling to their own materialist dogma, and so they try to debunk and deny everything I have said and written by simply stating that according to their current dogma it is obvious that an NDE must be produced by the brain. They only change their mind as soon as they have experienced an NDE themselves, like Eben Alexander (Alexander, 2012), Mary Neal (Neal, 2012) and many other physicians. I have met many 'materialist' scientists and physicians who have, after experiencing their own NDE, fundamentally changed their mind, and are now convinced that there must be a continuity of consciousness.

Experiences of enhanced consciousness just before, during, or after death

An NDE, or an experience of an enhanced or nonlocal consciousness during a life-threatening situation like cardiac arrest (Van Lommel et al., 2001) or coma (Van Lommel, 2010), and also during general anaesthesia (John et al., 2001, Laureys et al., 2004), makes it extremely unlikely that consciousness could be a product of the function of the brain. Based on these experiences it seems inevitable to suggest that there will be a continuity of consciousness after death.

But also experiences of an enhanced consciousness just before, during or after death support this conclusion.

1. **Deathbedvisions, End-of-Life Experiences, or ELE.** During the terminal phase of illness patients sometimes report

encounters with deceased loved ones who welcome them, or the sight of a beautiful, unearthly environment and a bright light, or a sense of unconditional love. Like an NDE, such an end-of-life experience takes away the fear of death. About 80% of terminal patients must have had an ELE (Koeman, 2015). Unfortunately, many accounts of ELE's are either not recognized as such or are interpreted as hallucinations, terminal confusion, or as the side effects of medication.

2. **Terminal lucidity.** This is the unexpected return of mental clarity and memory shortly before death in patients suffering from severe neurologic disorders, like the end-stage of Alzheimer disease. (Mashoura et al., 2019) These patients suddenly become lucid again, recognise family members and children again, call them by name, thank them, and die. Terminal lucidity cannot be easily explained by normal neurologic processes, because it has been reported by patients who have severe Alzheimer disease for many years, or are in coma for days, and in these patient's brain function must be severely impaired.

3. **A Shared-Death Experience, or SDE,** can be reported by healthy people who are usually present at the bedside of a dying relative, and who share the death experience of this close relative at the very moment of their death. They occasionally perceive a very special light in the room or around the bed of the dying person. But sometimes they also join the 'death experience' of the person who just died. They may experience a tunnel, the Light, the feeling of unconditional love, and even sometimes meet deceased relatives of the person who just died. But suddenly they are back in their healthy body again, at the bedside of the person who died just some minutes before (Van Lommel, 2021, Peters, 2022).

4. **A Peri-Mortal Experience.** Spiritual experiences with the contact of the consciousness of a beloved person who died somewhere else are called Peri-Mortal Experiences, although some call them Shared-Death Experiences as well. Sometimes

a vision of a dying relative or a strong sense of the dying person is perceived, mostly during sleep in a very clear 'so-called' dream or on a sudden awakening from sleep. Later it becomes clear that this experience happened at the exact time of the death of this person somewhere else. (Van Lommel, 2010) To understand these experiences, we must step outside the current materialist scientific framework.

5. A Post-Mortal Experience, After-Death Communication, or ADC, is the feeling or inner knowing to be in contact with the consciousness of a deceased loved one in the first days, weeks or months following his or her death (Rees, 1971, LaGrand, 1998, Haraldsson, 2012, Elsaesser, et al., 2020). This contact can consist of sensing a presence, feeling touched, or even seeing the deceased person, and is sometimes accompanied by communication, certain fragrances, or unexpected "chance" incidents that are intuitively linked with the dead person (Fenwick, & Fenwick, 2008, Van Lommel, 2010). These experiences mostly occur during sleep, and therefore they usually call it '*just a dream*'. People will share these conscious experiences only when they feel a great deal of trust and know that they will not be at the receiving end of prejudices or negative comments ("*It's just wishful thinking*"; "*It's your grief talking*"). In our Western society it is still a taboo to talk about the sensation of being in contact with a deceased loved one, even though about 70 to 80 % of the people who have lost someone will have an ADC. So, about 125 million people in Europe, and more than 175 million people in the USA (according to a recent Pew Research) must have had an ADC (Guggenheim & Guggenheim, 1995). The fact that contact is possible with the consciousness of a deceased relative is usually very comforting and helpful in the period of mourning, and healthcare workers or family members should not call an ADC a hallucination. There is no scientific explanation for these ADC's if we still believe that consciousness is only a side effect of a functioning brain.

Research on NDE, ELE, SDE, and ADC may be of great help to change our ideas about death, because based on these experiences it seems now beyond reasonable doubt that there must be a continuity of consciousness after the death of our body.

Science and NDE-Research

Since the publication of several prospective studies on NDE in survivors of cardiac arrest, with strikingly similar results and conclusions, the phenomenon of the NDE can no longer be scientifically ignored. It is an authentic experience which cannot be simply reduced to imagination, fear of death, hallucination, psychosis, the use of drugs, or oxygen deficiency, and people appear to be permanently changed by an NDE during a cardiac arrest of only some minutes duration. According to these studies, the current materialistic view of the relationship between the brain and consciousness held by most physicians, philosophers and psychologists is too restricted for a proper understanding of this phenomenon. (Van Lommel, 2021) Materialistic science starts principally from a reality that is only based on physical observable data. But we should be aware that, besides external and so-called objective perception and observation, there are also subjective, not observable, and not demonstrable aspects like thoughts, feelings, inspiration, and intuition. We can only measure the electrical, magnetic, chemical activities in the brain by EEG, MEG and PET-scan, and we can measure changes in blood flow in the brain by fMRI, but these are only neural correlates of consciousness. These measurements do not explain anything about the production nor about the content of consciousness. With our currently available scientific and objective techniques one cannot to even prove, measure, objectify nor falsify the content of the subjective experiences in our consciousness. Direct proof about how neurons or neuronal

networks could possibly produce the subjective essence of our thoughts and feelings is totally missing (Van Lommel, 2021).

By making a scientific case for the continuity of consciousness, we must question a purely materialist paradigm in science, and it seems to be important for our scientific ideas about the mind-brain and mind-body relationship. It is also evident that it is important for our concepts of life and death because of the almost unavoidable conclusion that at the time of physical death consciousness will continue to be experienced in another dimension, in which all past, present, and future is enclosed. Quote: *“Death is only the end of our physical aspects”* (Van Lommel, 2010). I believe now that death, like birth, may be a mere passing from one state of consciousness into another. People with an NDE did not quite die, but they all were very close to death, and without a functioning brain. So, it has now indeed been scientifically proven that during NDE enhanced consciousness was experienced independently of a functioning brain. Without a body, and without a functioning brain, we still can have conscious experiences, we are still conscious beings. In conclusion: we have a body, and we are conscious. Recently someone with an NDE wrote me (Van Lommel, 2010). Quote: *‘I can live without my body, but apparently my body cannot live without me’*. The NDE seems to be a personal re-discovery of wisdom and insight that is ages and ages old and has been well known in many cultures and in all times but nowadays seem to be forgotten. Here I would like to quote Plato (427-347 BC), who wrote more than 2000 years ago about the NDE or ‘vision’ of the soldier Er, who was thought to be dead for more than 10 days, and he also wrote (Plato, *Phaedo*). Quote: *‘And what is that which is termed death, but this very separation and release of the soul from the body? Time does not exist in the spiritual world. The ephemeral, material body is the temporary bearer of the soul, which is eternal. [...] The soul, free from the body, encounters the dead. [...] Death is an awakening, a remembering of the soul’*.

So, based on scientific research on NDE I cannot avoid the conclusion that endless consciousness has been and always will exist independently from the body. There is no beginning nor will there ever be an end to our consciousness. Our enhanced consciousness resides not in our brain and is not limited to our brain, because our consciousness is nonlocal, and our brain has a facilitating function, and not a producing function to experience consciousness. According to this view the brain has a permissive or transmissive role, like a filter or an interface: it admits or transmits information (Van Lommel, 2021).

Consciousness beyond the Brain

Based on the scientific research about NDE in survivors of cardiac arrest, with the uniform conclusions about the continuity and the non-locality of consciousness, and based on conclusions from recent consciousness research (Dossey, 2013, Alexander & Newell, 2017, Kastrup, 2018, Taylor, 2018, Faggin, 2024, Egnor & O'Leary, 2025), today more and more cognitive scientists, neuroscientists, and philosophers are coming to the inevitable conclusion that it is extremely unlikely that consciousness is a product of brain function, and that consciousness must be primary and fundamental. According to Chalmers, consciousness should be regarded as a fundamental property of the universe, and this view acknowledges a clear causal role for consciousness in the physical world (Goswami et al., 1993, Chalmers, 2002). Interestingly, the Australian neurophysiologist, philosopher and Nobel prize winner Sir John Eccles (1903-1997) has once stated (Eccles, 1980): *'The brain is the messenger to consciousness'*, and the English physicist, astronomer, and mathematician Sir James Jeans (1877-1946) wrote already many years ago (Jeans, 1934): *'I incline to the idealistic theory that consciousness is fundamental, and that the material universe is deriv-*

ative from consciousness, not consciousness from the material universe'. Even in 1931 the famous Nobel Prize winner and originator of quantum theory Max Planck (1858-1947) said (Planck,1931): I regard consciousness as fundamental. I regard matter as derivative from consciousness. We cannot get behind consciousness. Everything that we talk about, everything that we regard as existing, postulates consciousness'. And the quantum physicist and Nobel prize winner Erwin Schrödinger (1887-1961) has written (Schrödinger, 1958): 'Consciousness cannot be accounted for in physical terms. For consciousness is fundamental. It cannot be accounted for in terms of anything else'. Recently this was confirmed by Donald Hoffman, an American cognitive scientist, who wrote (Hoffman, 2008): 'Conscious realism is a non-physicalist monism: Consciousness is ontologically fundamental. Consciousness is first; matter and fields depend on it for their very existence'. And as quantum physicist Jude Currivan argues (Currivan, 2017): 'We, our consciousness, and all things in the universe, are non-locally connected with each other and with all other things in ways that are unfettered by the hitherto known limitations of space and time'.

Based on the currently widely accepted non-locality of consciousness I am now convinced that consciousness is fundamental and that everything originates from consciousness. Consciousness creates our subjective reality. There is no beginning nor will there ever be an end to consciousness. Death is only the end of our physical body, but not the end of our consciousness. We need a new 'post-materialist' approach in science to accept this new insight. However, we should acknowledge that new ideas in science are usually ridiculed, neglected, and only slowly adopted, as the philosopher and psychologist William James (1842-1910) wrote many years ago (James, 1907): 'First, you know, a new theory is attacked as absurd; then it is admitted to be true, but obvious and insignificant; finally, it is seen to be so important that its adversaries claim that they themselves discovered it'. Unfortunately, new ideas in science are nowadays

still not easily accepted at all, as the physician Ian Stevenson (1918-2007), who published a lot about reincarnation, once stated (Stevenson, 1997): *‘It has been said that there is nothing so troublesome as a new idea and I think that is particularly true in science.’* And I sincerely hope that quantum physicist Max Planck (1858-1947) was wrong when he said in 1934 (Planck, 1948): *“A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it.”*

Conclusions NDE –Research

In the past a lot has been written about life and death, and about special states of enhanced, or non-local consciousness. But surprisingly, many people nowadays still have never heard about NDE's, ELE's, SDE's, or ADCs, and this is why they still 'believe' that death is the end of our existence and the end of our consciousness. People are afraid that with death everything comes to an end. As a young doctor this was also my idea about death. But based on the results and conclusions of recent NDE research my current view is now (Van Lommel, 2010). Quote: *‘There are good reasons to assume that our consciousness does not always coincide with the functioning of our brain: enhanced consciousness can sometimes be experienced separately from the body’*. Remarkably, in a recent representative social poll in Europe about 55 per cent of the population, more than 250 million people, believed in some kind of personal survival, and in the USA this percentage is even higher. These surprising high figures are in sharp contrast with the opinion of most Western scientists, who systematically ignore and ridicule the possibility of personal survival after physical death (Van Lommel, 2010). The current materialistic view on the mind-brain relationship is too restricted for a proper understanding of the NDE. So,

we desperately need a real paradigm shift in science, we need to expand science as soon as possible to be able to include subjective experiences.

Our ideas about death define how we live our life.

Regarding what we can learn from people who are willing to share their NDE, ELE, SDE, or ADC with others, I would like to quote Dag Hammerskjöld (1905-1961): “*Our ideas about death define how we live our life*” (Hammerskjöld, 1964). Because if we believe that death is the end of everything we are, we will give our energy toward the temporary and material aspects of our life, like just being interested in more money, in power, in competition, in big houses, in big cars, in expensive clothes, or in a beautiful young body. In our short-sightedness and sometimes wilful ignorance we forget to reflect on the future of our planet, where our children and our grandchildren will have to live and survive. We forget about sustainability as we are now destroying and exhausting systematically our planet, just because we are living in a competitive and materialistic society. We should realize that the harm we cause to each other and to nature ultimately is harming ourselves, because we as humans are not only intensively interconnected (‘entangled’) with each other, but also with animals and plants living on our endangered earth. I hope that in the near future we will accept nonlocal concepts to understand how we are, and always will be, interconnected with each other, also after physical death, and that we have to change our personal consciousness, not only to change the way we live, but also to change the way we want to respect people who are willing and able to share their NDE, ELE, SDE, or ADC with us. Their lives changed in ways they were not prepared for, and they all tell us that they fundamentally changed their ideas about life and death,

because (Quote): ‘*You can be physically dead but your mind lives on*’. Another Quote: ‘*Death was not death, but another form of life*’ (Van Lommel, 2021).

Summarizing:

Consciousness seems to be our essence, and once we leave our body, leave our physical world, we exist as pure consciousness, beyond time and space, and are we enfolded in pure, unconditional love. Obviously, this new insight helps us to better understand the concept of the continuity of consciousness, and about the importance of love. As a woman with an NDE wrote to me: “*When the power of love becomes stronger than our love of power, our world will change*”. It will require a huge change in consciousness indeed, and we should all feel the responsibility for this change.

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MAREK MIEDZIŃSKI
WSB Merito University Wrocław
ORCID: 0000-0002-7041-5004
e-mail: marek.miedzinski@wroclaw.merito.pl

The Impact of NDEs on Changes in Life Attitudes

Abstract. The article examines the impact of near-death experiences (NDEs) on the subsequent lives of those who have experienced them, with particular emphasis on differences between an individual's functioning before and after the event (the so-called aftereffects). Based on a critical review of the literature, typical changes in the psychological, social, and spiritual functioning of experiencers were identified. The article also demonstrates that the contemporary reductionist approach proves insufficient to provide a full explanation of the phenomena described.

Keywords: Near-death experiences (NDEs), Aftereffects, Reductionism, Critical literature review, Existential transformation

Philosophical reflection on the problem of near-death experiences (NDEs) is a complex undertaking that can proceed in various directions. Two opposing perspectives readily emerge in the study of this issue. The first is represented by researchers who accept the reality of postmortem experiences, whereas the second is represented by researchers who seek to show that such experiences do not extend beyond the biological sphere. From the latter perspective, attempts to identify purported ontological or metaphysical aspects of NDEs lead to unnecessary and unjustified postulates.

Another possible direction of research is to set aside the need to establish the veridicality of near-death experiences - that is, whether they involve a continuation of consciousness after the death of the biological body - and to focus instead on the impact of the experience itself on the experiencer's subsequent life. On this approach, the experience itself is either left aside or considered only for comparative purposes, while the main focus is placed on the changes and consequences that occur after it. These changes are then examined in relation to the experiencer's life before the NDE.

To put this schematically, let A represent life before the experience, B the experience itself, and C life after the experience. The research in question would then focus primarily on the relationship between A and C - that is, on differences in lifestyle before and after the experience -without seeking either to establish or to deny the veridicality of experiencers' reports. Although there is no shortage of methods available for investigating such relationships, excessive attention to the veridicality or illusory nature of NDEs may evoke negatively charged associations, which may explain the limited interest in the subject within the scientific community.

Research findings show that the experience has a significant impact on those who undergo it. It most often leads to changes in behavior and ethical attitudes. In many cases, changes also occur in worldview, religious beliefs, and the perception of reality. The experiencer's previous way of life may also change, including their life goals, values, and moral attitudes.

Some researchers point to recurring patterns in these after-effects. Since more recent research conducted by other scholars confirms the findings of earlier studies, I will rely mainly on the observations reported by Ring, Atwater, Grey, Sabom, Flynn, and Morse.

Few NDErs report no changes in their personality (Atwater, 1988, p. 64). As Morse notes, they undergo a profound trans-

formation whose effects persist throughout the rest of their lives (Morse & Perry, 1993, p. 159). Atwater compares these after-effects to the changes that follow profound religious or mystical experiences, or even experiences of enlightenment (Atwater, 1988, p. 130). Morse makes a similar comparison, relating NDEs to the experiences of mystics and religious leaders (Morse & Perry, 1993, p. 160). Sabom takes a similar approach, comparing these transformations to the standards of conduct set out in the Bible (Sabom, 1998, p. 240). Ring likewise points to parallels with religious traditions. He notes that most religious and spiritual traditions emphasize values such as love, compassion for others, selflessness, appreciation of the spiritual life, and the desire to know and love God (Ring, 1985, p. 121).

Researchers with no religious affiliation explain these changes differently, namely by appealing not so much to religious expectations as to social ones. They point out that members of society are expected to act ethically, to contribute to the good of their communities, and to devote themselves to helping those in need. However, when it comes to family breakdown and the weakening of parent-child relationships, it is difficult to accept conclusions of this kind. No one expects family relationships to deteriorate rather than grow stronger. Yet reports by NDErs quite often mention family breakdown occurring shortly after an NDE.

Margot Grey states that the most common form of transformation is a change toward a more positive way of life, particularly in one's relationships with other people and with nature. After an NDE, experiencers seek to find meaning in life and set new goals for themselves, especially goals related to personal growth. Their attitudes toward friends and family also change. They experience a sense of being "born again," accompanied by a desire to live life to the fullest. They report increased compassion and tolerance, and their lives become, to

a large extent, devoted to serving others. Material possessions are no longer regarded as an important goal.

Grey distinguishes three main and most frequently occurring categories of change: (1) an increased desire to be more open and loving toward others; (2) a desire for deeper knowledge, described as a wish to understand “the laws of the universe,” though not in the sense of purely scientific information or speculation; and (3) a desire to develop one’s talents and abilities in the service of others (Grey, 1985, p. 96).

Atwater proposed a model of typical changes following an NDE (Atwater, 1988, p. 64). In her view, there are seven main types of change. She notes that, in some cases, time is needed for the full integration of the transformation. Among the cases she studied, she identified the following typical after-effects: (1) experiencing “unconditional” love; (2) a sense of diminished boundaries in interpersonal relationships; (3) an absence of rigid rules, principles, or limitations; (4) a sense of timelessness; (5) difficulties in accepting the emergence of paranormal phenomena, such as foreknowledge of future events, mind-reading, or mental communication; (6) personality changes and changes in self-perception, including viewing oneself as a soul inhabiting a body, which may result in reduced attachment to external reality and diminished fears and anxieties; and (7) changes in patterns of communication.

Grey also outlines a similar pattern. The main aspects she identifies are: (1) a more positive attitude toward life; (2) living life to the fullest; (3) a sense of being “reborn”; (4) a renewed sense of meaning and purpose in life; (5) a stronger sense of self-worth; (6) increased compassion; (7) reduced attachment to material possessions; (8) lower expectations; (9) increased empathy; and (10) greater understanding of others, together with a reduced tendency to distinguish between those close to oneself and strangers (Grey, 1985, p. 101).

Drawing on both her own research and that of others, Grey adds further after-effects of NDEs: (11) the absence of fear of death; (12) a conviction that life continues after death; (13) belief in God or a Higher Power; and (14) belief in heaven and, in some cases, particularly following negative NDEs, belief in hell. Grey (1985, p. 107) also notes changes in religious attitudes, including: (15) intensified religious feelings; and (16) a change of religious affiliation, often accompanied by a move toward non-institutional spiritual philosophies centered on the search for God (Grey, 1985, p. 110).

Based on his research, Sabom points to similar after-effects of NDEs. He identifies several of them: 1) a sense that life has meaning and significance; 2) an enhanced capacity to love and to give love to others; 3) compassion and tolerance toward others; 4) “innate” faith; and 5) greater commitment to family (Sabom, 1998, pp. 84–96). He also highlights: 6) stronger faith in God and belief in an afterlife; 7) greater concern for others; 8) a desire to engage in prayer; and 9) a new, transformed, and enriched approach to spirituality (Sabom, 1998, pp. 207–208).

Ring's publications also seem to confirm what has been said above. His studies suggest that the most common after-effects of NDEs include: 1) a greater appreciation of life; 2) a stronger sense of self-worth; 3) increased compassion for all living beings; 4) greater ecological awareness; 5) less interest in material possessions; 6) seeking values within oneself; and 7) a shift from adherence to a particular religion toward a more universal, spiritually oriented, multi-religious outlook. Ring further points to: 8) the absence of fear of death, grounded in the experience of the continuation of life; and 9) an increase in paranormal abilities (Ring, 2000, p. 3).

Despite differences in detail, researchers agree on the general nature of these changes and identify their main elements as follows:

Feeling unconditional love

There is broad agreement among people who have undergone deep NDEs about what one feels during an NDE, especially when encountering the Light. This feeling cannot be compared with anything previously known or experienced. This kind of love, experienced with such intensity, becomes one of the main factors giving rise to subsequent after-effects. NDErs are, as it were, “filled” with this love. They feel a sense of unity with all living beings. Drawing on her own experience, Atwater describes this love in the following words: “overwhelming love, a kind of love beyond precedent, beyond description. There is nothing else quite like it – a feeling, a knowing of oneness and worth, of total freedom and total acceptance. No demands. No stipulations. No conditions. No criteria. Just love – boundless, infinite, all-encompassing – a love so forgiving, so total, so immense, nothing can contain it.” She concludes this description with the words: “It is God’s love. You just know.” (Atwater, 1988, p. 65).

After an NDE, experiencers often want everyone to know about this kind of love and to understand how it manifests itself. They want to share it and, as Atwater puts it, to share this knowledge of love with the whole world—to spread the good news about it (Atwater, 1988, p. 65). She emphasizes that she has encountered an overwhelming number of accounts in which experiencers spoke of their desire to share this kind of love with others or to put it into practice in their everyday lives (Atwater, 1988, p. 65). Grey follows a similar line, identifying an enhanced feeling of love as one of the distinctive features among the after-effects of NDEs (Grey, 1985, p. 96).

In Ring’s words, this feeling is a kind of “message” conveying only a fragment of what experiencers felt during their NDE (Ring, 2000, p. 125). This is their way of sharing that feeling. From the perspective of their family members, however, it may look like a “betrayal.” In everyday life, people do not treat

everyone in the same way; they do not love a random passer-by in the same way as they love their own daughter or son. Their relatives have not had an NDE and are unfamiliar with this kind of experience, and therefore may be unable to understand what is happening to someone they love. Very often, this lack of understanding eventually leads to separation, divorce, etc..

Grey also notes that her respondents report a more intense experience of love not only toward other people but also toward nature. They describe this love as something distinctive—something they now experience but had never experienced before their NDE. Their accounts also refer to a heightened awareness of others, as well as greater compassion for and understanding of other people (Grey, 1985, p. 96).

Sabom likewise notes that his respondents show a tendency to desire to help others, to feel compassion, to be tolerant, and to love others (Sabom, 1998, p. 84).

Perceiving oneself as a soul

One of the most significant changes is perceiving “self” as a separate from one’s biological body. Total lack of attachment between what constitutes a person (self), and what is its “vessel”. So understood personality results from the experience of self’s parting the body. In the reports of all the researchers we constantly come across words such as: *I left my body* or *suddenly*, or *I felt that I am out of my body*, or *I saw my body from above*; or *I felt a complete disattachment with my body; my consciousness separated from my body*.

One of the most significant changes is the perception of the “self” as distinct from and separate from the biological body. There is a complete lack of identification between what constitutes the person—the self—and what serves merely as its “vessel.” This understanding of the self results from the experience

of its separation from the body. Across the reports discussed by different researchers, we repeatedly encounter strikingly similar formulations, such as: *I left my body; suddenly, I felt that I was outside my body; I saw my body from above; or I felt completely detached from my body; my consciousness separated from it.* Such description can be found in Sabom (1998, p. 204), Atwater (1988 pp, 11 & 99), Grey, (1985, p. 6), Ring, (2000, p. 26) Morse (1993, p. vii), Moody, Flynn (Flynn 1986, p. 10), Nicholls and many others.

There are also numerous cases in which NDErs describe their “return” to the body. They recount this process in detail, including the reluctance they feel about returning to it. While “outside” the body, they experience freedom, a sense of unrestricted movement, a feeling of complete knowledge, and the absence of any need to breathe, eat, or satisfy other bodily needs. The body, by contrast, “limits” them, “slows them down,” and becomes a source of pain and a sense of imprisonment (Atwater, 1988, pp. 11, 99). It is often associated with suffering. Moreover, out-of-body experiences are also associated with an altered state of consciousness characterized by love, tolerance, acceptance, a sense of eternity, enduring happiness, and the experience of God’s presence and love.

After returning to the body, they have to face reality, which is often very difficult for them and may involve pain and illness. With the memory of what they experienced during their NDE, they have to resume the life they lived before. Yet it is not always “the same” life. It is now shaped not only by the memory of the NDE but also by an “understanding” expressed in the words: *I am not this body* (Atwater, 1988, p. 11). Perceiving oneself as a being separate from the body is a major factor generating further behavioral changes.

NDErs quite often describe their profound puzzlement when, during an NDE, they see their body below them. This puzzlement arises when they begin to wonder how such a “division” is possible. They feel conscious, yet they “see” (Sabom, 1998,

p. 203) their unconscious body. They ask themselves: *How can I be here if I am there?* Such an experience of a division between spirit and body later leads to the belief that consciousness can survive the death of the biological body. This is also reflected in a changed attitude toward life: less attachment to material possessions, problems, worries, and difficulties. Sometimes, during an NDE, they feel no connection with the body at all; they may not even recognize it as their own. At times, they seem to forget completely about any connection with it.

Lack of fear of death

We can confidently say that the lack of fear of death is one of the main after-effects observed following an NDE. However, it is important to distinguish between the process of dying (Ring, 2000, p. 127) and the moment when consciousness separates from the body, as these are often confused. The absence of fear referred to above does not mean that NDErs are not afraid of suffering, agony, or pain associated with the process of dying. They are, however, no longer afraid of death as something unknown, unpredictable, or uncontrollable. Nor do they fear that death will result in nonexistence, and consequently they do not suffer from this particular fear. In their view, death does not really exist; it is merely a transition to a different state of consciousness rather than a cessation of existence. NDErs are also not afraid of the death of those close to them.

Grey (1985, p. 96) points to the factors that give rise to this belief about death. In her view, as in Ring's, the main factor shaping this conviction is the number of stages an NDEr has undergone. The deeper the experience, the stronger the conviction that consciousness survives the death of the biological body (Grey, 1985, p. 105). Morse, however, argues that both the initial and the deeper stages reduce the fear of death to

a similar degree (Morse, 1993, p. 63). Morse (1993, p. 62) goes even further, claiming that an NDE has a healing power that can free experiencers from the fear of death.

Comparative studies of the level of fear of death were also conducted. The participants included people who had an NDE and terminally ill patients. Among those who had an NDE, the level of fear of death decreased, in contrast to the level observed in the other group (Flynn, 1986, p. 56). Morse reaches similar conclusions, pointing to a clear contrast in fear of death between people who had come close to death but had not had an NDE and those who had (Morse, 1993, p. 63).

Lack of interest in material goods

For those who have had an NDE, material goods are no longer objects of desire, longing, or aspiration. If consciousness survives separation from the biological body, and consequently separation from everything associated with the body, there is little point in striving for possessions that will soon have to be left behind.

Ring (2000, p. 126) refers to this state as “antimaterialism.” For those who have had an NDE, a life focused on material goods becomes empty and meaningless. This is associated with another important after-effect of NDE: a lack of desire to compete with others. The desire to follow paths and trends set by society fades, as does the desire to compete with other members of society in the pursuit of material goods. As Ring notes, being someone important or influential, or making a strong impression on others, no longer lies within the sphere of NDErs’ interests. What matters now is caring rather than achieving (Ring, 2000, p. 126).

Attitudes of this kind also lead to changes in professional life. The source literature frequently mentions people chang-

ing careers, leaving their own well-established businesses, and making similar changes. Atwater (1988, p. 96) makes the same point. Her research shows that these people become less materialistic and more focused on others than on themselves. Caring for others becomes far more important than the mere accumulation of material goods.

Flynn (1986, p. 37) notes that striving for material goods, including positions and offices, ceases to be a goal. Competition gives way to compassion. People lose interest in outperforming others, “pushing them out,” or attaining status. As many as 52% of NDErs report only a minimal or moderate desire to become wealthy (Flynn, 1986, p. 37). Morse (1993, p. 223) reports similar findings, noting a tendency to turn toward personal rather than material values.

“Hunger” for knowledge

Although not all researchers describe this after-effect, manifested in a drive to acquire knowledge, the search for information, the desire to know and understand reality, and a “hunger” for knowledge appear in the vast majority of reports. It is important to note, however, what kind of knowledge is being sought, since not every kind of knowledge becomes an object of interest. It is not, for example, theoretical or technical knowledge, nor practical or manual knowledge; nor does it consist in current economic, political, social, or crime-related information. What is sought instead is knowledge about the nature of the universe and the paths of spiritual development; knowledge about deepening one’s consciousness, interpersonal relationships, personal development, and the purpose of life. NDErs also frequently explore topics related to physics, especially the theory of relativity and quantum mechanics, and sometimes philosophy and astrophysics. Their search

also quite often turns toward Eastern philosophy, meditation, prayer, and “immersing oneself in spiritual matters.” What is desired is any knowledge that may help NDErs approach the state they experienced during their NDE (Ring, 2000, p. 126).

Another significant factor motivating the search for knowledge is the desire for personal development. Many NDErs “learn” during their experience that life “serves” the purpose of development. Moreover, the more we understand, the more questions we are able to ask, and the answers we receive lead to further development. NDErs’ reports suggest that during an NDE one may ask any question; however, the questions one is able to ask are determined by the knowledge one already possessed before the experience. “Deeper” topics, or answers that “reveal” the nature of reality, the universe, spirit, God, and so on, may in some cases be “communicated” to those who already possess a sufficient background of knowledge, who have “open” minds, and who desire to know the truth and continue searching for it.

Atwater (1988, pp. 97-98) writes: “Because of shifted belief systems, average survivors appear filled to overflowing with new revelations as they seek out other sources to verify what they learned, turning most often to areas such as quantum physics, transpersonal psychology, the works of Tesla, Einstein, comparative religion, transformation, and human potential movements. Others turn to traditional sources to find multi-dimensional levels of truth.”

After an NDE, greater creativity, a more holistic perception of reality, and a childlike sense of joy and naivety may be observed (Atwater, 1988, p. 96). This is accompanied by a change in the goals one pursues in life. The search for knowledge comes to focus on self-realization, wisdom, and new paths of personal development. One seeks solace in philosophical, mystical, theosophical, or theological knowledge, although not within the framework of any particular doctrine. Sabom

(1998) repeatedly adopts a pro-Christian stance. On the basis of his findings, he concludes that his respondents tend to turn toward Christian religious traditions.

It may also be significant that during an NDE experiencers feel “filled” with omniscience, and their later search for knowledge is inspired by the desire to experience at least a fragment of what was within their reach during the NDE. Some experiencers speak of finding knowledge within themselves. One of Flynn’s respondents claims that one has to learn how to “find it within oneself” and discover this knowledge there (Flynn, 1986, p. 12).

In addition, Atwater and Morse write about what they call increased intelligence. According to these researchers, after an NDE experiencers seem to become more intelligent. This manifests itself in many areas (Morse, 1993, p. 58).

Living full life

In most cases, the lives of people who have had an NDE are no longer the same as they were before the experience. Experiencers notice in themselves a desire to live life more fully and to experience it in all its manifestations and forms. This does not imply any endorsement of hedonistic ideas, but rather a strong desire to experience and discover the many values that life has to offer. To use a metaphor, experiencers try to “get” as much out of life as possible and to experience as much as they can in the course of self-realization. This does not imply any loosening of moral standards or an improper moral attitude. Rather, it involves a search for the essence of experience and a conscious way of living through it. Art, literature, music, philosophy, work for others, and interpersonal relationships, including friendship, love, and affection, may then be rediscovered. NDErs seek in life what can be experienced and what

gives their lives meaning. They do not want to waste a single moment.

As Atwater writes, a significant number of experiencers “return” with a sense of mission. Quite often, this is expressed in a desire to convey a message about the afterlife, to share the knowledge gained during their NDE, including the conviction that consciousness survives the death of the biological body, and to share the love they experienced. Atwater also emphasizes that many NDErs want to describe their experiences by publishing them in book form.

Changes in Beliefs and Worldview

In a significant number of publications, we read about NDErs’ interest in new or alternative forms of religion and their departure from beliefs rooted in family traditions or their native culture. One also comes across the fairly common view that they tend to search for a form of religion that is not based on doctrines or “blind faith,” but rather for a universal path (Morse, 1993, p. 68): a universal religion unconstrained by strict rules of obligation and prohibition but going beyond mere ceremony, worship, or ritual (Morse, 1993, p. 68). The emphasis shifts from religion to God, from religiosity to spirituality, and from the external aspects of religious practice to the inner life (Grey, 1985, p. 108). Thus, organized forms of religiosity are replaced by a focus on spiritual development (Ring, 2000, p. 126).

In their publications, Atwater and Ring mention changes in religious beliefs and the resulting “migration” between religious traditions. They emphasize that this shift reflects a search for a more universal form of religion compatible with the beliefs NDErs have acquired through their experience. Eastern philosophy is mentioned most often, along with a belief in reincarnation. In the eyes of NDErs, Eastern thought seems to

offer the most comprehensive worldview compatible with their understanding of the laws governing the reality they perceive.

To complete the list of changes occurring in the lives of NDErs, we should also consider such areas as changes in professional life, values and life goals, and psychological changes, as well as the negative consequences of these changes. This discussion also leaves aside the changes occurring within different social groups resulting from the dissemination of knowledge about NDEs. We have also not addressed the influence of NDErs on those around them, or changes in social attitudes motivated by knowledge derived from their reports. Finally, the resistance to the subject of NDEs within scientific and religious circles would also require further consideration.

Advances in medical technology have increased the number of people who survive life-threatening medical events and are therefore able to report their NDEs. Their reports, in turn, contribute to a growing body of knowledge about the phenomenon, which increases interest in the topic and inspires further researchers to explore it.

Another factor contributing to changes in social attitudes is the development of multimedia technologies, which has helped reduce the fear of stigmatization and criticism. Seeing others openly share their experiences encourages people to disclose their own accounts, often after having kept them private for many years. Over the past two decades, there has also been growing interest in NDEs not only in the media but also within the scientific community. Although researchers working on NDEs are still sometimes labeled in ways that set them apart from mainstream science, their research may contribute to further changes in the field.

A comparative analysis of the two states designated earlier as “A” and “C” poses no particular difficulties. However, the experience itself, represented by “B,” raises an equally interesting question. It can be said beyond reasonable doubt that

a considerable number of researchers do not question the authenticity of these experiences. This is especially true of researchers who began investigating the phenomenon after having had an NDE themselves. A similar attitude can be found among scientists who have no such personal memories but report that, after conducting hundreds of interviews, they find it difficult to dismiss the experiencers' accounts.

It becomes particularly difficult to question these experiences when the experiencers' reports correspond to independently established facts. This is the case, for example, when a resuscitated person who had been considered "dead" provides an account that accurately reflects, in considerable detail, the sequence of events that occurred during the resuscitation attempt. Another example involves NDErs who describe features of the room that could only have been observed from an elevated vantage point. Similar cases involve reports in which information previously unknown to the experiencer is somehow "conveyed" to them during the NDE. One illustration is the case of a young boy who told his parents that, during his NDE, he had met his unborn brother. He could not have known about him, since his parents had never told him about an abortion that had taken place many years earlier. It is difficult to explain how he could have acquired such knowledge through a hallucination.

Similarly, there are cases in which experiencers appear to "observe" events occurring away from the location of their NDE, for example, a conversation, and later accurately recount what was said. Hallucinations do not seem to provide a satisfactory explanation for such cases either.

In seeking to answer the question about the nature of NDEs, it is useful to consider the views of NDErs themselves. For them, there is no doubt: they regard their NDEs as more real than the lives they lived before the experience (A) and continue to live afterward (C). Many emphasize that, from their perspective, the continuity of consciousness (the "self")

is not a matter for theoretical consideration but simply a fact. In their view, death affects only the biological body. Many long to return to the state they experienced during their NDE. They also believe that science will eventually have to develop a new model of inquiry that goes beyond its current conceptual and methodological framework.

As they point out, while we are dreaming, the world experienced in the dream seems entirely real; upon waking, however, the waking world seems more real.

Such profound changes are not typically observed after ordinary hallucinations. At present, we are able neither to explain the experiences themselves nor to account for the apparent accuracy of some NDE reports. Nor do we fully understand why so many of these reports share similar content or why similar patterns of transformation recur among experiencers. We can, however, investigate the after-effects of NDEs, and hallucinations do not seem to provide an adequate explanation for these changes. NDEs themselves, by contrast, appear to be the key to understanding such transformations, while the nature of these transformations may, in turn, shed some light on the nature of NDEs, suggesting that they may be something more than mere hallucinations.

Therefore, we need further studies as above postulated reaching beyond the veil of the attachment to reducing every experience to the biological sphere. A new model and paradigm might set scientist free from the fear of pejorative categorization of their research.

Further research is therefore needed, together with the willingness, as some researchers have suggested, to move beyond the tendency to reduce every experience to purely biological processes. Such a paradigm shift might free scientists from the fear that their research will be negatively labeled or dismissed.

Our current scientific tools and conceptual framework do not allow us to adequately explain NDEs. We therefore need

either to revise some of our concepts and definitions or to acknowledge that, at the present stage of scientific inquiry, we should refrain from drawing overly far-reaching conclusions, especially negative ones that rule out certain interpretations prematurely. Further research, together with more refined scientific and medical tools, may help us move beyond the tendency to approach NDEs from an exclusively reductionist perspective. This, in turn, may enable us to develop broader and more adequate explanatory models.

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PIOTR BYLICA, PHD
Institute of Philosophy, University of Zielona Góra
ORCID: 0000-0001-6668-6170
e-mail: p.bylica@ifil.uz.zgora.pl

NDEs as a Persistent Anomaly within the Naturalistic View of Reality, but Not a Refutation of It

Abstract. This paper examines near-death experiences (NDEs) as a persistent anomaly within the naturalistic view of reality, drawing on Thomas Kuhn's concepts of paradigm and anomaly. The analysis focuses particularly on reports of apparently accurate perception during NDEs and on the question of whether such experiences can be adequately explained within prevailing brain-based models of consciousness. Recent discussions surrounding the AWARE-II study illustrate the continuing uncertainty concerning the relationship between reported conscious experience and measurable brain activity during cardiac arrest. The paper argues that, if some information reported during NDEs were shown to have been acquired without ordinary sensory access, this would challenge accounts that reduce such experiences to hallucinations and would require a broader scientific understanding of human cognition. However, such findings would not by themselves establish a supernaturalist interpretation or refute naturalism. Since empirical evidence does not uniquely determine an overarching ontology, naturalism might instead be revised or extended, for example by abandoning the assumption that consciousness is produced by the brain while retaining the view that consciousness belongs to nature and remains open to scientific investigation. NDEs therefore constitute a persistent challenge to current naturalistic models rather than a decisive refutation of naturalism.

Keywords: near-death experiences; naturalism; consciousness; Thomas Kuhn; scientific paradigms; anomalies; philosophy of science; extended naturalism

Most scientific problems and investigations have no particular significance for what is commonly called a worldview, nor are they directly connected with the most general assumptions of science itself. Research into how materials respond to weather conditions, how to optimize crop irrigation, or the thermal conductivity of different materials, for example, is neutral in these respects. The study of NDEs, like questions about the origins of the universe, life, and human beings, or research into the nature of consciousness, does not belong to this category. It bears directly on both our overall picture of the world and the ontological assumptions of science itself. This connection is implicit, for example, in a well-known statement by the American historian of science and atheist William Provine:

“Let me summarize my views on what modern evolutionary biology tells us loud and clear – and these are basically Darwin’s views. There are no gods, no purposes, and no goal-directed forces of any kind. There is no life after death. When I die, I am absolutely certain that I am going to be dead. That’s the end of me. There is no ultimate foundation for ethics, no ultimate meaning in life, and no free will for humans, either” (Provine, 1994).

A philosophical examination of selected scientific publications on NDEs—the approach adopted in this paper—suggests that certain reported features of these experiences constitute a persistent challenge to prevailing naturalistic accounts of consciousness. By “the scientific worldview,” I mean here a worldview that draws naturalistic conclusions from science, setting aside for the moment the question of whether such conclusions necessarily follow. The use of the concepts of paradigm and anomaly to describe scientific research became widespread in the philosophy of science through the work of Thomas Kuhn (Kuhn, 1962, 1970). He characterized paradigms as accepted

exemplary solutions to scientific problems that establish how problems within a given discipline are to be solved, which methods are to be used, which problems fall within the scope of inquiry at all, and which solutions are acceptable.

Paradigms also incorporate metaphysical beliefs that provide scientists with a picture of the reality they investigate. These beliefs form the basis of an ontological model of the phenomena under study: they specify, for example, what the objects being investigated are, how they are structured, what processes take place within them, and what mechanisms govern them. Some of these beliefs may be philosophical in character. One example is the belief that the world as a whole is nothing more than a vast, eternal, uncreated mechanism, directed by no one and composed of atoms in constant motion, which spontaneously arrange themselves into various structures and produce all observable phenomena.

A scientist working within a particular paradigm relies on it to determine what to investigate, how to conduct the investigation, and what results to expect. In this sense, during periods of what Kuhn called “normal science,” when an accepted paradigm prevails, scientific work consists in “puzzle-solving.” By this he meant solving specific problems in ways defined by the paradigm—for example, finding an explanation for a given problem that is consistent with the paradigm’s ontology.

Kuhn called problems that cannot be solved in this way anomalies. If certain anomalies prove particularly persistent or significant in some other respect, they may lead to a crisis, the emergence of alternative paradigms, and ultimately a scientific revolution involving a paradigm shift. Although scientists may share standards of theory assessment, these do not provide an algorithm that uniquely determines the choice between competing paradigms. Such a choice is therefore not settled by empirical evidence alone. Social factors also play a role. For example, over time, supporters of the old paradigm, typically

older scientists, may come to be outnumbered by supporters of the new paradigm, usually younger scientists, for entirely natural reasons such as death. A paradigm shift thus depends in part on factors other than purely cognitive ones. In this respect, Kuhn belongs to the sociohistorical tradition in the philosophy of science, which regards not only facts and logic but also sociocultural, psychological, philosophical, and other factors as significant for scientific development, including the content of accepted scientific theories.

The prevailing ontological assumption of science as a whole, rather than merely of a particular scientific discipline, is known as naturalism. Naturalism is treated as a necessary condition for an inquiry to qualify as scientific. Yet its precise meaning can vary, and several forms of naturalism can be distinguished. Broadly speaking, however, the naturalism that might be called “the paradigm of contemporary science as a whole”—although Kuhn himself generally applied the term “paradigm” to individual scientific disciplines—holds that an *adequate* explanation of any event investigated by science requires reference only to factors belonging to “this world,” that is, the material world, and thus natural factors in this broad sense.

The naturalistic worldview grounded in science generally holds that all objects and events are *ultimately* physical in nature: they are physical objects or physical events. This means that what are traditionally called “supernatural entities”—God, souls, spirits, angels, and so forth—do not exist, or at any rate that their existence need not be postulated in an adequate *ultimate* explanation of any phenomenon investigated by science.

By speaking of *ultimate* explanation, I wish to draw attention to the fact that some naturalists would say, for example, that mental states emerge from physical processes in the brain and are irreducible to them, or that psychological or social phenomena are distinctive and nonphysical. Within the prevailing brain-based forms of naturalism, however, they will not mean

that thought and consciousness can exist independently of the brain, or that social phenomena can exist independently of material individuals—the bodies of the people who make up a society. Rather, they will hold that these phenomena are “ultimately,” in some not further specified way, products of the physical. They will simply regard the physical as capable of giving rise to biological, mental, psychological, or social phenomena.

Drawing on Kuhn’s terminology, NDEs can be regarded as an anomaly within the naturalistic view of reality outlined above. In a strictly scientific context, the immediate problem is the suggestion that consciousness and thought may function despite the absence of brain activity. This is not merely an anomaly but a persistent one: ever since scientific attempts to account for NDEs began following the publication of Raymond Moody’s famous book *Life After Life* (Moody, 1975), certain aspects of these experiences have resisted explanation in terms of available scientific accounts. A recent example of this ongoing debate can be found in Resuscitation. In the AWARE-II study, Parnia and colleagues (Parnia et al., 2023) recorded EEG activity during cardiopulmonary resuscitation and suggested that the emergence of patterns consistent with consciousness might reflect a resumption of cognitive activity and provide a biomarker of near-death experiences. In their response, Greyson and van Lommel (Greyson & van Lommel, 2024) argued that the evidence was insufficient to establish this connection: the study did not demonstrate the relevant EEG patterns in the patients who subsequently reported NDEs or other conscious experiences. They also questioned the extent to which artifacts associated with resuscitation could be excluded. This exchange illustrates the continuing uncertainty surrounding the relationship between recorded brain activity and reported experiences during cardiac arrest.

It is in this context that the question “Are near-death experiences merely hallucinations, or are they something more?” should be considered. Reports of apparently accurate perceptions during NDEs, including out-of-body experiences, are well known among NDE researchers. They are mentioned, for example, by van Lommel and colleagues (van Lommel et al. 2001) in *The Lancet*, one of the world’s leading medical journals. Such reports raise the question of whether all aspects of NDEs can be adequately explained as hallucinations. Corroboration of reported details does not by itself establish when or how the information was acquired. If, however, some of these observations were shown to occur without ordinary sensory access to the relevant information, they would indicate a need to expand current scientific accounts of human cognitive capacities.

On the one hand, this opens the way to supernaturalist accounts of human beings and their cognitive capacities. On the other hand, any eventual confirmation of extrasensory information acquisition during NDEs would not in itself necessarily require abandoning a scientific account of reality. It might instead support an expansion of the scientific picture of nature. As Willard Van Orman Quine, the leading philosopher associated with the project of naturalizing epistemology, put it: “The science game is not committed to the physical, whatever that means. ... Even telepathy and clairvoyance are scientific options, however moribund” (Quine, 1992, as cited in Tümçaya, 2026).

NDEs, however, include a range of other elements that pose challenges not only to scientific theories of consciousness but also to the naturalistic scientific worldview more broadly. Taken at face value, the accounts of people who have had NDEs would contradict not only the contemporary naturalistic model of human beings, which understands them entirely in biological, psychological, and social terms, but also the naturalistic paradigm of science as a whole. In this context, it is worth

asking: “Does an adequate explanation of NDEs require us to go beyond the contemporary naturalistic paradigm?”

The crucial point is that empirical findings do not, by themselves, uniquely determine an overarching ontology. Even if some NDE reports were shown to involve information acquired without ordinary sensory access, this would not yet settle whether the underlying processes should be understood in naturalistic or supernaturalist terms. It may therefore be possible to reconcile NDEs, reports of which are facts requiring explanation, with naturalism by regarding them as the effects of natural factors belonging to this world—since, according to naturalism, no other factors exist. This remains possible even if some aspects of these experiences cannot be treated as hallucinations. One might hold that consciousness, although neither produced by the brain nor dependent on it for its functioning, is nevertheless physical, perhaps extending beyond the dimensions accessible to us through our physical bodies.

Pim van Lommel’s work illustrates an attempt to move beyond the view that the brain produces consciousness. Van Lommel and colleagues (2001) question this view, while van Lommel (2006) develops an alternative account drawing on concepts from quantum physics. Whether this account should be classified as an extended naturalism requires further argument; its appeal to physics does not by itself settle that question. Nevertheless, it illustrates the possibility of seeking an account of consciousness beyond prevailing neuroscientific models without simply appealing to divine intervention.

In conclusion, I regard some reports of apparently accurate perception during NDEs as a persistent challenge to explanations that classify these experiences as mere hallucinations. If the reported information was acquired without ordinary sensory access, at least these aspects of NDEs would require a broader account of human cognition. This would not yet establish the ultimate nature of the experiences.

An adequate explanation might therefore require a revision of prevailing naturalistic models without requiring the abandonment of naturalism itself. An extended naturalism could, for example, relinquish the claim that consciousness is produced by the brain while retaining the view that consciousness belongs to nature and is open to scientific investigation. Whether such an account can be developed successfully remains an open question. My conclusion is therefore that NDEs present a persistent challenge to current models, but do not by themselves compel a supernaturalist interpretation or refute naturalism. If Kuhn and the sociohistorical tradition in the philosophy of science are right, empirical evidence alone will not determine whether a paradigm shift occurs; such a shift will also involve a change, shaped by various factors, in the overall picture of reality accepted by the scientific community.

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PIOTR SUFFCZYNSKI
Faculty of Physics, University of Warsaw, Poland
ORCID: 0000-0002-2300-1415
e-mail: Piotr.Suffczynski@fuw.edu.pl

Theories of Consciousness and Near-Death Experiences

Abstract. Near-death experiences (NDEs) are profound subjective states reported by up to 20% of patients resuscitated after cardiac arrest. Paradoxically, they occur when cerebral activity is severely impaired or absent. Some NDE reports include veridical perceptions, i.e., accurate descriptions of real events that occurred when normal sensory functioning was unavailable, e.g., during coma or general anesthesia. Such reports pose a significant challenge to standard physicalist and naturalist explanations of the mind, which hold that consciousness originates from cerebral cortical activity and ceases when that activity is sufficiently impaired or absent. This chapter reviews existing theories of consciousness, organized by Kuhn's (2024) taxonomy into ten categories spanning a spectrum from strict physicalism to non-physical dualism and idealism, and discusses how each family of theories addresses NDEs and the survival of consciousness. By applying Papineau's causal closure principle, which holds that every physical event with a cause has a sufficient physical cause, I argue against supernatural explanations of NDEs and conclude that an extended form of naturalism, rather than strict materialism or supernaturalism, offers the best explanation of NDE phenomena.

Keywords: near-death experience, veridical perception, consciousness, naturalism, dualism, causal closure

Within 10 to 20 seconds of cardiac arrest, when the brain is deprived of oxygen, the cerebral cortex, the outer layer of the brain

believed to be responsible for conscious thought, sensory processing, and self-awareness, shuts down. Yet, 10 to 20% of recovering patients report vivid recollections of a death experience (B. Greyson, 1993; van Lommel et al., 2001; Parnia et al., 2022). These states, termed near-death experiences (NDE) include different components categorized by Greyson (1983) as cognitive (e.g., moving through a tunnel toward a light, life review), affective (e.g., a sense of peace and love), paranormal (e.g., out-of-body experience, extrasensory perception) and transcendental (e.g., encountering deceased relatives or a “being of light”).

Paradoxically, these experiences appear to occur at a time when cerebral function is severely impaired or absent, sometimes accompanied by a sustained flat line on an electroencephalogram (EEG) (van Lommel et al., 2001; Parnia and Fenwick, 2002). More recent observations in the dying brain of comatose patients undergoing withdrawal of life-sustaining therapy showed transient, approximately 100–150 s-long bursts of heightened brain activity and connectivity that preceded the eventual flattening of the EEG (Xu et al., 2023). The authors suggested that this transient increase in activity may underlie the subjective percepts reported during NDEs. Building on various neurophysiological and psychological findings, a neuroscientific model of NDE has been proposed that treats these experiences as the product of an interacting sequence of psychological and neurophysiological events within an evolutionary context, rather than as arising from a single mechanism (Martial et al., 2025).

On the other hand, NDE reports sometimes contain descriptions of veridical perceptions, i.e., instances in which a person having an NDE accurately perceives real-world events they should not be able to perceive through normal senses, e.g., due to anesthesia, coma, or eyes taped shut. The recalled details are subsequently verified by independent third parties, e.g., medical staff. It is worth noting that a rigorous, multicenter

investigation into consciousness and awareness during cardiac arrest used hidden images placed in hospital rooms and found no strong evidence for veridical NDEs (Parnia et al., 2023). However, it has been noted that hiding images in a fixed physical location wasn't the appropriate test for the phenomenon under investigation (Parnia, (2024), p. 296; Weiler et al., 2026). On the other hand, reports of veridical perception continue to accumulate in the literature (Beauregard et al., 2012; Rivas et al., 2023; Sepioni et al., 2026; Woollacott and Peyton, 2021). If substantiated, such reports would pose a significant challenge to standard physicalist or naturalist accounts of mind.

A central question for this volume is whether NDEs can be explained within the naturalistic paradigm, require that the paradigm be extended, or rather demand a supernatural explanation. To take a closer look at this question, I will provide an overview of the theories of consciousness and their stance on NDEs and the survival of consciousness beyond death. This overview draws on a taxonomy of more than 200 theories of consciousness (Kuhn, 2024). His work offers a useful map for this question, since his 10 categories can be placed along a spectrum from physical/neurobiological models to non-physical dualistic, idealistic, or altered-states theories, including a subsection on NDEs. The overview of various theories and their position towards NDEs is shown in Table 1.

Table 1. Summary of major theory families and their stance on survival/NDEs, based on Kuhn (2024).

Theory/ category	Core claim	Stance on NDE/survival of consciousness
Materialism (incl. neurobiological, computational)	Consciousness is produced entirely by brain activity	No survival. NDEs require a physiological explanation (e.g., transient neural activity, REM intrusion, hypoxia)

Theory/ category	Core claim	Stance on NDE/survival of consciousness
Non-Reductive Physicalism	Mental properties are not reducible to, but still depend on, brain states	Generally, no survival; possible exception under theistic “resurrection” framings
Global Workspace Theory	Consciousness requires information to be broadcast across a global neural workspace, not merely present locally	No survival. Consciousness is identified with physical broadcasting mechanism, so no substrate persists once the brain ceases to function
Integrated Information Theory	Consciousness level depends on integrated information in a system	Leaves the door open but does not itself entail survival
Quantum Theories	Consciousness arises from quantum-level physical processes	Survival unclear. No established mechanism
Panpsychism	Proto-consciousness is a fundamental feature of matter	Survival unlikely. No clear account of the “combination problem” after death
Monism	Reality is one fundamental substance/principle	Potentially compatible with survival, but requiring an added supernatural mechanism, depending on the particular theory.
Dualism	Mind/soul is distinct and separable from the body	Survival affirmed; first-person consciousness preserved
Idealism	Consciousness is fundamental; matter is derivative	Survival affirmed, but typically as dissolution into a universal consciousness rather than personal continuity
Anomalous & Altered States Theories	Psi, OBE, and NDE phenomena are taken as evidence against purely physicalist accounts	Survival affirmed as a central or supporting claim

At one end of the spectrum are Materialism Theories, including philosophical, neurobiological, and computational theories. These theories state that all conscious phenomena are produced by brain activity. Accordingly, death of the brain leads to permanent loss of first-person experience, and NDEs must in principle be explained by residual or transient neural activity, e.g., the blending of sleep and waking states, lack of oxygen (hypoxia), or the transient gamma bursts described by Xu et al. (2023), even if the precise link to the reported experience remains unclear. The Materialism category includes one of the two main competing theories of consciousness: the Global Workspace Theory (GWT). The GWT holds that consciousness arises only when information is broadcast across a global neural workspace, making it available to multiple cognitive subsystems, rather than remaining confined to local or non-integrated activity (Baars, 1988; Dehaene, 2014). In light of this theory, the mere presence of organized EEG activity, such as delta, theta, and alpha activity reported during CPR in AWARE-II (Parnia et al., 2023), would not, by itself, indicate reportable consciousness unless it reflected genuine broadcast-level integration. However, Xu et al. (2023) found neural signatures of global communication in the brains of 2 out of 4 dying subjects, which, according to GWT, is relevant to consciousness.

Non-Reductive Physicalism argues that mental properties aren't strictly identical to brain states, but remain fully dependent on the brain's ongoing physical activity. These theories require a physical system to instantiate mental states (similar to the idea that a physical computer is required to run a program, though the two are not equivalent). They deny the survival of consciousness. The notable exception is Christian materialism and the resurrection of the dead theory, which assumes material and causal continuity between the matter that composes the body and soul while alive and its instance

recreated by God after death (Van Inwagen, 1978). Thus, while this theory remains physicalist, its conception of resurrection is supernaturalistic, as it rests on divine action beyond the phenomena studied by the natural sciences.

In the middle of the landscape are Quantum theories of consciousness and Integrated Information Theory (IIT). The latter is the second dominant, empirically oriented, theory of consciousness. IIT relates consciousness to the degree of integrated information (Φ) a system generates, and in principle allows for graded or minimal consciousness even under significantly reduced cortical activity. Importantly, the IIT formulation is substrate-independent. Hence, in principle, any sufficiently integrated system could have some degree of consciousness, not just biological brains. In this regard, IIT is in line with panpsychism, but contrary to it, it implies that not everything is conscious. Although IIT does not claim that consciousness survives after death, Kuhn (2024) notes that it leaves the door open, since the permanence of the ontological structure or substrate of consciousness cannot be fully ruled out once the brain ceases to function.

Quantum theories of consciousness constitute one of the largest categories in Kuhn's landscape, encompassing theories that explain consciousness through quantum-level physical processes rather than classical neurobiology. The best-known proposal is Penrose and Hameroff's Orchestrated Objective Reduction theory, which locates consciousness in quantum computations within microtubules inside neurons (Hameroff and Penrose, 2014). Quantum theories remain physicalist in the sense that they invoke no substance beyond the physical universe, but they extend naturalism beyond standard neurobiology by proposing that well-established quantum mechanics plays a functional role in the brain and in generating consciousness. Mainstream science often disputes this claim as empirically unconfirmed, particularly the idea that quan-

tum coherence could be sustained in the brain's warm, noisy environment (Tegmark, 2000). On the other hand, some recent studies report experimental evidence of quantum-like effects in microtubules taking place at room temperature (Sergi et al., 2025), hence, the debate remains unresolved. The standard Orch OR theory does not specify what happens when neurons cease functioning and therefore does not, by itself, explain the persistence of consciousness beyond brain function reported in some NDE accounts. Recent theoretical proposals have begun to explore how an Orch OR-based framework might accommodate NDEs.

While Panpsychism treats consciousness as a fundamental feature of reality and, in this way, opens a possible conceptual route to survival, it also permits survival only speculatively. The major obstacle is the so-called combination problem: explaining how countless micro-experiences combine to form a unified, first-person perspective during life. Since this forward process is not yet well understood, it remains unclear what happens to that unified perspective when the macroscopic organization producing it dissolves at brain death. However, some forms of panpsychism, such as Constitutive Russellian Panpsychism, argue that this framework is compatible with the persistence of an individual conscious subject after biological death (Schermsbrucker, 2024).

Monism theories are a broad category unified by a principle that reality ultimately consists of a single fundamental substance or principle. Monism theories are a broad category unified by a principle that reality ultimately consists of a single fundamental substance or principle. This contrasts with dualism, which holds that reality consists of two fundamentally distinct domains, such as mind and matter. In the philosophy of consciousness, monist approaches include physicalism, which regards consciousness as arising from or being identical with physical processes, as well as panpsychism and cos-

mopsychism, which attribute consciousness or phenomenal properties to fundamental constituents of reality or to the universe as a whole. Idealist forms of monism, in contrast, treat consciousness or experience as ontologically fundamental and physical reality as derivative. Monist theories, which treat consciousness as a fundamental aspect of reality (Russellian monism, panpsychism, and cosmopsychism), do not require consciousness to depend strictly on brain function. In particular, cosmopsychist and idealist approaches include interpretations in which individual consciousness represents a differentiated manifestation of a more universal consciousness. From this perspective, the cessation of brain function would not necessarily imply the cessation of consciousness itself. However, the continued existence of universal consciousness does not by itself imply that a particular individual conscious subject survives. To account for personal survival, such theories must also explain how an individual subject's identity could persist after the cessation of the brain processes associated with that individual. For example, Polkinghorne's Dual-Aspect Monism holds that mind and matter are not two separate substances but two complementary aspects of a single, unified reality (Polkinghorne, 2009). It views the soul as an information-bearing pattern carried by the body/brain and suggests that after bodily death, this pattern is preserved in divine memory for future reassembly, thereby implying a supernatural concept.

By contrast, Dualism, going back to Descartes, posits that mind and matter are two fundamentally different kinds of reality. In this view, consciousness is distinct from the brain rather than produced by it. Hence, this category can most directly accommodate both veridical perception and postmortem survival. However, it also faces a key problem of how mind and matter interact if they are composed of different kinds of substance. Solutions to this problem, e.g., evoke claims of one substance (matter) but two irreducibly different *kinds of*

properties (physical and phenomenal), such as in Chalmers's property dualism. He calls it "naturalistic dualism" to show that it rejects supernatural phenomena while still accepting something beyond the physical. However, a significant part of the Dualism category consists of explicitly religious conceptions of the soul, e.g., Christian, Islamic, Hebrew Bible, Indigenous. They propose that a nonphysical soul or spirit is the seat of consciousness and can exist independently of the body, affirming NDEs through supernatural mechanisms.

Idealism holds that consciousness is fundamental, and that the physical world, i.e, space, time and matter, is its different form. Some idealism theories, e.g., Kastrup's Analytic Idealism, argue that the physical brain is not the source of consciousness but rather an "interface" to a more fundamental field of consciousness. In this view, Idealism permits consciousness to survive bodily death. However, it is assumed that individual consciousness is dissolved back into the more fundamental universal consciousness rather than is preserved as the unitary, personal self. Hence, while Idealism accommodates NDEs and veridical perception, it does so without personal continuity, contrary to Dualism.

Finally, Anomalous and Altered States theories, i.e., the category under which NDEs, out-of-body experiences, and related phenomena are usually discussed, take reports of psi, veridical perception, and postmortem communication as direct evidence against purely materialist accounts, without themselves constituting a unified theory of consciousness.

Conclusions

The accumulating evidence suggests that NDEs are not merely hallucinations, but reflect a genuine and still poorly understood phenomenon. Mainstream scientists continue to favor

a materialistic approach, holding that everything, including consciousness, is physical. They tend to stick to neurobiological explanations, though these explanations do not appear sufficient to account for the full range of reported NDE phenomena, particularly veridical perception. Philosophers offer a much wider range of positions, from materialism to dualism, panpsychism, and idealism. However, the main, still unsolved problem in most of these theories is explaining how first-person consciousness could persist after bodily death; a solution to this problem is typically achieved only by invoking a supernatural mechanism.

Invoking David Papineau's causal closure principle that every physical event with a cause has a sufficient physical cause, I would argue against supernatural explanations of NDEs. In the case of veridical perceptions during NDEs, the report itself is a physical event and, by this principle, must have a physical cause, even if it lies outside known physics or neurobiology. In light of this argument, I favor extended naturalism as the more plausible framework for explaining NDEs.

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JANICE MINER HOLDEN

Department of Counseling & Higher Education, University of North Texas

ORCID: 0000-0003-2819-0777

e-mail: jan.holden@unt.edu

Accounting for Veridical Perception in Near-Death Experiences: The Need for a Post-Materialist/ Physicalist Perspective

Abstract. Near-death experiencers (NDErs) perceive their consciousness to be functioning apart from their physical bodies, observing the material world and observing and interacting with transmaterial environments and entities. They typically report that, subjectively, the experience felt as real or more real than normal waking reality. The question arises regarding their objective reality. I bring case evidence to bear on a comparison of NDEs and hallucinations, finding that they are predominantly dissimilar. In particular, I focus on apparently non-physical veridical perception (AVP)—in which an NDEr perceived something idiosyncratic that was subsequently verified as accurate—which seems to defy a physicalist/materialist explanation. I conclude with a discussion of ramifications of these data for humanity.

Keywords: near-death experience, materialism, physicalism, veridical perception, post-materialism

In a near-death experience (NDE), usually during a close brush with death or other extreme circumstance, a person reportedly experienced their consciousness functioning lucidly apart from their physical body, perceiving the material world and/or perceiving environments and entities not of the material

world (Greyson, 2021; Zingrone & Alvarado, 2009). Research has revealed a deep structure to these experiences, which I have come to characterize as five aspects—similar to stages, except not all NDEs include every aspect, and the middle three aspects, though usually occurring in the following order, may occur in a different order or may overlap. The experiencer (NDEr) reports having (a) perceived their consciousness leaving their body, or simply found their consciousness outside their body, (b) perceived the material world from one or more positions outside the body, (c) perceived a transition between the material world and a transmaterial domain involving rapid movement through space or some structure such as a tunnel, (d) perceived and interacted with environments and beings not of the material world—beings such as deceased loved ones and/or spiritual/religious entities, and (e) perceived their consciousness reenter their body or suddenly just being “back” in their body (Holden, *in press*; Zingrone & Alvarado, 2009). Research has also revealed patterns of psychological, spiritual, physical, and social aftereffects (Greyson, 2021; Noyes et al., 2009). NDErs typically describe the experience as having been as real as, or more real than, normal waking reality (Greyson, 2021; Holden et al., 2009). The question arises whether, despite their subjective reality, NDEs may be mere hallucinations.

Two sets of data argue against this conclusion. First, hallucinations resulting from conditions such as mental disorder or high fever are similar to NDEs in very few ways and different from them in several ways; see Table 1.

Table 1. Comparison of Hallucinations and NDEs

Feature	Hallucinations	NDEs
Nature of experience	Reported experience of subjective perception	Reported experience of subjective perception
Perceived reality of the experience during it	Perceived as real	Perceived as real
Perceived reality of the experience after returning to normal consciousness	Perceived as unreal	Usually perceived as real
Predominant emotional tone	Usually distressing	Usually profoundly pleasurable
Deep structure of the experience	No deep structure	Deep structure
Persistence of memory of the experience	Memory fades	Memory remains vivid, even after decades
Aftereffects	No pattern of aftereffects	Documented pattern of aftereffects
Desire to reflect on the experience	No desire to reflect on the experience	Usually intense desire to reflect on the experience
Affect when reflecting on the experience	Neutral or distressing	Usually profoundly pleasurable

Note. Adapted from Greyson (2021).

Second, one additional difference involves the phenomenon of *apparently non-physical veridical perception* (AVP; Holden, 2009). Beginning with Raymond Moody’s 1975 book *Life After Life*, in which he introduced the term *NDE* and with which he is now credited with having opened the contemporary field of near-death studies, numerous authors have presented cases in which an NDE was not only subjectively real to the NDEr but also potentially objectively real. That is, in these cases, the NDEr reported having perceived things during the NDE that appear not to have been within the reach of their normal perceptual or inferential abilities and that were later confirmed

to have been accurate (Holden, 2009; Holden, in press). The term *veridical* carries the meanings *verified* or *confirmed* and also *corresponding to consensus*, “*objective*” reality. Some veridical perception can be explained; for example, describing routine activities could be attributed to inference or imagination. Other veridical perception involves objects of perception that are so idiosyncratic that it is difficult, if not impossible, to explain as the products of inference or imagination; these comprise the cases of AVP. In the strongest cases, the accuracy of the perception has been verified by credible sources such as an attending physician and/or hospital records. To my knowledge, AVP has not been documented with hallucinations but has been documented with NDEs.

AVP can occur during the material and/or transmaterial aspect of an NDE. Following is an example from the material aspect.

Anesthesiologist Chris Yerington reported the following case from his time working at Ohio State University in late 2003 or early 2004 (Rivas et al., 2023, pp. 139–146). A patient, pseudonym “Frank,” arrived at the hospital “clinically dead before the operation and then remained dead for another 94 minutes” (p. 140) while undergoing heart surgery in complete hypothermic circulatory arrest—body chilled to less than 18 degrees Centigrade / 64 degrees Fahrenheit, with no respiration, heartbeat, or blood circulation. Although most patients of this type do not survive, Yerington was surprised the next day to find Frank well recovered. Frank then reported to Yerington that the entire time before and during the surgery, “he” was up at the ceiling, watching and listening to everything that happened. Everything he reported corresponded to Yerington’s memory—along with one detail that did not: Frank reported

the three serial numbers off the tops of the three operating lights in OR #20, finally adding, “I was trapped up there on the ceiling

staring down at the whole thing. . . . Those stupid numbers and letters were the only thing I could read. I love reading.” (p. 141)

Yerington reported that, upon checking the reported numbers, they were exactly correct.

The question arises how a patient who was in an operating room only while fully anesthetized and mostly while clinically dead could accurately report nine digits of serial numbers observable only from the perspective of the ceiling—unless his consciousness actually was up at the ceiling, looking down, as he testified it was.

In a case of veridical perception involving the transmateral aspect, a man told Moody that while he was hospitalized, and knew his sister also was under medical care elsewhere in the hospital, he was “terribly ill and near death with heart problems” (p. 223) when he left his body, met his sister, and had “a great conversation” (p. 223) until she began moving away from him.

I tried to go with her, but she kept telling me to stay where I was. “It’s not your time,” she said. . . . Then she just began to recede off into the distance through a tunnel while I was left there alone. (p. 224)

Upon regaining consciousness, he told the doctors she had died, which they denied, but at his insistence they contacted the department where she was being treated, and those medical personnel confirmed that she had died. Then “Moody contacted the attending physicians. They confirmed that the patient’s story was correct” (p. 224). The question again arises how a man, physically separated from his sister, could know with conviction that she had died—unless his consciousness actually encountered hers transmaterially.

Not surprisingly, researchers have attempted to capture AVP under controlled circumstances through prospective

hospital studies. Each study involved some variation of placing a visual stimulus, such as a photograph, just below ceiling level, facing the ceiling, as most NDErs report the room location of their disembodied consciousness to be at a ceiling corner. In chronological order, the researchers so far have been myself and Leroy Joesten (1990), Madelaine Lawrence (1996), Sam Parnia et al. (2001), Penny Sartori (2004), Bruce Greyson et al. (2006), Parnia et al. (2014), and Parnia et al. (2023). In short, none of these studies has yielded a case of AVP captured under controlled circumstances. Many have, however, captured additional cases of AVP in “unmarked” hospital rooms during the course of the study.

Thanks to Titus Rivas, Anny Dirven, and Rudolf Smit, these and other cases are among 104 reported in the first six chapters of the second edition of the book *The Self Does Not Die: Verified Paranormal Phenomena From Near-Death Experiences*. In each case, the NDEr perceived something idiosyncratic and seemingly outside the reach of normal perception or inference, and what they perceived was later verified by at least one credible third party. The question then arises whether even this extensive collection of verified case reports—in 48 cases verified by physicians, in two cases by medically associated PhDs, in five cases by PhD-level nurses, and in eight cases by non-PhD nurses and similar medical professionals. These professionals came from 10 different countries, indicating the widespread and cross-cultural occurrence of AVP (Holden, in press).

AVP challenges the philosophical stance that dominates science and medicine: physicalism/materialism, the belief that all phenomena have a physical cause and can be explained in terms of material processes. Current physicalist/materialist models of brain function fail to explain verified perceptions that occurred while the brain was idling, as in a state of total anesthesia, or displayed no measurable activity, as occurs within about 20 minutes of cardiac arrest (van Lommel et al.,

2001). Some of the arguments physicalists/materialists have offered, along with my and others' responses, include:

- Anesthesia awareness. In these cases, a patient is inadequately anesthetized during surgery, so their perceptions could be attributed to their actually having been conscious. However, anesthesia awareness is almost always a traumatizing experience of perceiving surgical pain, whereas in NDEs, a patient describes a typically peaceful, if not blissful, experience of perceptual disconnectedness from their body (Greyson, 2021).
- Fraud. According to this claim, people reporting AVP are motivated to gain attention by lying. However, because of the dominance of physicalism/materialism in medicine, medical professionals are actually disincentivized from reporting phenomena that challenge the prevailing paradigm. Rather than being fraudulent, these professionals have courageously reported what they observed, often stating explicitly that they could not explain it in physicalist/materialist terms (Holden, in press).
- Reconstructed memory. According to this argument, the NDEr did not actually perceive what they recall having perceived at the time they recall having perceived it. Rather, drawing on inference, imagination, and information they received through normal means but do not remember having thus received it, they constructed a memory after the fact. However, the idiosyncratic nature of AVP observations argues against this explanation. Medical professionals would not typically discuss, within earshot of a patient, phenomena such as a leg amputation being conducted in an adjacent operating room (Rivas et al., p. 97), a surgeon who “flaps his arms” during surgery (pp. 9–11), a string of post-it notes (pp. 89–96), or the details of the hospital CPR training room on the floor above the NDEr's location (pp. 131–132)—or would, at least in some cases, remember having

done so. In addition, careful analysis has confirmed “time markers” showing that the perception could have occurred only during the medical crisis (Nahm & Weibel, 2020).

If the AVP debate were conducted in a United States court of law, I believe the evidence for its existence would certainly pass the misdemeanor criterion of “the predominance of evidence” and might even pass the felony criterion of “beyond a reasonable doubt.” The strength of this evidence calls for a post-physicalist/post-materialist perspective, one that affirms and includes physicalism/materialism and also expands on it. The nature of that expansion is hotly debated in the current professional literature, with authors having proposed numerous models (Kelly et al., 2015; Mays & Mays, in press).

Leaving now the domain of professional literature and falsifiable hypotheses, I offer my personal conclusion. Individual human consciousness, though closely associated with the brain during physical life, exists essentially independent of the brain. It preexisted a current lifetime and will survive the demise of the current physical life. It has the ability to merge with a larger consciousness of which it is a part and also to re-coalesce as an individual consciousness. I am not sure whether to characterize it as a “substance,” but whatever it is, it exists independent of, and possibly as a source of, the material investigated in traditional physics.

For me, the answer to the question of the nature of consciousness and what model best explains the entirety of observed phenomena is less important than my reason for having studied AVP throughout my professional life. Many NDErs “return” from their experiences with a message for humanity: that human life is purposeful, and the purpose is for each person to advance in their capacity to love. I define love as the commitment to the well-being—surviving and thriving—of the love object. When I imagine a world functioning on the principle of love, applied at every level from moment-to-moment personal interactions

to global policy, I envision a very different world than the one I perceive currently. If humanity is to embrace and enact the message of NDEs, it is more likely to do so if NDEs are understood to be not only subjectively, but also objectively, real. Even when bracketing this motive in my pursuit of the study of AVP, I have found that attempts to explain away AVP in physicalist/materials terms do not stand up to scrutiny. The upshot of this finding now rests with humanity.

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NGOC MINH
Institute of Sociology and Psychology. Deputy Director
e-mail: ngocnminh@gmail.com

Near-death experience: a buddhist interpretive approach

Abstract. The near-death experience (NDE) is a widely documented consciousness phenomenon among survivors of life-threatening conditions, characterized by relatively stable cross-cultural phenomenological features: a sense of separation from the body, movement through darkness, encountering light, a life review, and a profound sense of peace. This article focuses on an approach to near-death research grounded in Buddhist thought within the Vietnamese context, specifically, how Buddhism, with a doctrinal system spanning more than twenty-five centuries concerning karma, rebirth, non-self, and the intermediate state between death and rebirth (the intermediate body, or bardo), interprets the nature of near-death experience. The principal method employed is critical literature review combined with textual analysis of canonical sources and cross-cultural comparison. The article is organized around four main strands: (1) a systematization of Buddhist teachings on the dying process, proximate karma (*āsanna-kamma*), and the intermediate state across the Theravāda, Mahāyāna, and Tibetan Vajrayāna traditions; (2) a detailed comparison between international NDE phenomenology and the descriptions found in the Tibetan Book of the Dead (*Bardo Thödol*), identifying structural parallels in experience (light, encountered beings, an internally generated moral reckoning) alongside important differences reflecting cultural context; (3) the phenomenon of meditation-induced near-death experience as an empirical bridge between Buddhist contemplative tradition and contemporary neuroscience; and (4) how Vietnamese Buddhism through the practice of deathbed chanting (*hộ niệm*), Pure Land thought, and the writings of contemporary Zen teachers has received and applied the near-death phenomenon within spiritual

practice and end-of-life care. The article suggests that, while unable to substitute for empirical scientific methodology, the Buddhist approach offers a rich conceptual framework and a contemplative practice system capable of meaningfully complementing palliative care and psychological support for the dying in Vietnam.

Keywords: Near-death experience; Buddhism; Karma; Rebirth; Intermediate state; Tibetan Book of the Dead; Proximate karma; Vietnam.

I. Introduction

The term near-death experience (NDE) was systematized by Moody (1975) in *Life After Life*, after which it developed into the interdisciplinary field of near-death studies, drawing the attention of resuscitation medicine, neuroscience, philosophy of mind, and the psychology of religion. Van Lommel and colleagues' (2001) study of 344 cardiac arrest patients found that approximately 18% of survivors reported an NDE, while Ring's (1980) research identified a set of relatively stable phenomenological features among those who had undergone the experience: a sense of peace, separation from the body, movement through darkness or a tunnel, encountering light, a life review, and a profound sense of unity before returning. Greyson's (1983) scale, however, excluded the tunnel element: although the experience of passing through a dark tunnel appeared in 32% of participants, it was not incorporated into the formal scale, since the phenomenon was also found to occur commonly in other altered states of consciousness and did not help distinguish the depth of an NDE (Greyson, 1983).

International scholarly debate over the nature of NDE revolves around the opposition between naturalism, which reduces the experience to the neurophysiological mechanisms of a collapsing brain, and extended philosophical or supernaturalist positions, which allow for the possibility that con-

consciousness exists relatively independently of cortical activity. Buddhist knowledge, however, predates modern medicine and offers a detailed and systematic body of teaching on the nature of death, the process of consciousness at the moment of dying, and the intermediate state between two lives — a body of knowledge rarely brought into systematic dialogue within theoretical reviews of NDE. With a doctrinal history spanning more than twenty-five centuries concerning karma, rebirth (*saṃsāra*), non-self (*anātman*), and in particular the concept of the intermediate body (*bardo*, *antarābhava*), the state of existence between death and rebirth, Buddhism, especially the Tibetan Vajrayāna tradition as recorded in the *Bardo Thöдол* (Tibetan Book of the Dead), offers a detailed and systematic account of the process of consciousness at the moment of approaching death.

Notably, when Western NDE researchers began engaging with the *Bardo Thöдол* in the mid-twentieth century, they discovered striking parallels between this ancient description and modern NDE reports, even though the two bodies of knowledge developed entirely independently of one another, both historically and geographically (Becker, 1985). This raises the question of whether such convergence reflects some universal structure of human consciousness when confronting death, irrespective of culture, or whether it is merely a surface-level coincidence between two distinct interpretive systems. It also raises a further question: how has Vietnamese Buddhism — with its distinctive blend of Zen (*Thiền*), Pure Land (*Tịnh Độ*), Tantric (*Mật tông*) elements, and folk belief — received and applied the phenomenon of near-death experience within spiritual practice and the care of the dying?

Building on these questions, this article poses four research questions: (1) How is Buddhist teaching on the dying process, proximate karma, and the intermediate state systematized across the Theravāda, Mahāyāna, and Vajrayāna traditions?

(2) What specific similarities and differences exist between the phenomenology of NDE as described in the Tibetan Book of the Dead and international research, and what do these imply about the nature of the experience? (3) What role might meditation-induced near-death experience play as an empirical bridge between Buddhist contemplative tradition and contemporary neuroscience? (4) How has Vietnamese Buddhism received and applied the near-death phenomenon in spiritual practice, and what are the implications for end-of-life care and psychological support in Vietnam?

II. Research methodology

This article employs a critical literature review combined with textual analysis of canonical sources and cross-cultural comparison. Source material was drawn from four categories. The first comprises peer-reviewed international scholarship on near-death studies, providing a common phenomenological foundation (Moody, Ring, Greyson, Van Lommel). The second consists of canonical texts and Buddhological commentary on the process of death and rebirth, including the Tibetan Book of the Dead (Bardo Thödol), alongside Vietnamese Buddhist commentarial sources on proximate karma and the intermediate state (Thich Nhat Hanh, 2008). The third comprises scholarship that directly compares NDE with Buddhist doctrine. The fourth consists of contemporary Vietnamese Buddhist writings concerning the nature of death and commentary on the practice of deathbed chanting (hộ niệm).

The article follows an analytical framework that: systematizes doctrine; compares NDE phenomenology with canonical Buddhist descriptions using a shared classificatory scheme (light, encountered beings, life review/moral reckoning, the experience of time, and outcome); analyzes empirical research

on meditation and NDE; and surveys Vietnamese Buddhist practices related to the near-death phenomenon. The article adopts the principle of presenting Buddhist doctrinal content as an internally coherent system of knowledge in its own right, while comparing it with scientific phenomenology without reducing either system to the other. The article does not aim to prove or disprove the metaphysical truth of Buddhist teachings on rebirth, a question that lies outside the methodological scope of empirical social science, but instead focuses on analyzing the interpretive and practical value of this framework in relation to the near-death phenomenon.

III. Results and discussion

3.1. Near-death experience in international research

Ring (1980) proposed a “core experience” model comprising five stages of increasing intensity: a sense of peace; a sense of separation from the body (out-of-body experience); movement through darkness or a tunnel; the perception of light; and entry into that light, often accompanied by encounters with deceased loved ones or a “being of light.” Greyson (1983) developed the Near-Death Experience Scale, comprising 16 items across four components: cognitive (life review, accelerated thought), affective (peace, harmony), paranormal (precognition, perceiving light), and transcendental (encountering beings, reaching another realm, a point of no return).

A feature of particular theoretical significance for comparison with Buddhist doctrine is the “life review”: many NDE experiencers report a process of reviewing their entire life in an instant, not merely as an observer but by re-experiencing the emotional impact their actions had on others — a form of internally generated “moral reckoning” that arises sponta-

neously from the experiencer rather than being imposed by an external authority (Ring, 1980; Moody, 1975). This feature resonates structurally with the concept of self-manifesting karmic retribution found in Buddhist teaching on the near-death process.

3.2. The Buddhist cosmology of death: karma, rebirth, and non-self

Buddhist doctrine holds that death is not a cessation but a transitional point within the continuum (*santāna*) of consciousness, governed by the law of karma and rebirth (*punarbhava*) within the cycle of *saṃsāra*. Unlike many theistic religious traditions, in which an unchanging soul migrates from one life to the next, Buddhism, on the basis of the doctrine of non-self (*anātman*), denies the existence of any fixed, permanent “self” that is transmitted from one life to another. Within the Mahāyāna Yogācāra tradition, the concept of *ālayavijñāna*, the “storehouse consciousness”, is regarded as the repository of karmic seeds (*bīja*) accumulated across countless lifetimes, functioning as a form of karmic “memory” that persists throughout the cycle of birth and death, even though it too is impermanent and not itself a fixed self.

The concept of proximate karma (*āsannakamma*, Pāli, or *maraṇāsanna-kamma*) occupies a central place in the teaching on the moment of death: the state of mind, thoughts, and emotions dominating a person’s mind at the moment closest to death are held to exert a particularly powerful influence, greater even than the accumulated good or bad deeds of an entire lifetime, in determining the realm of the next rebirth (Tâm Huấn, 2019). If a dying person gives rise to wholesome states of mind, turning toward the Three Jewels or generating compassion, they are believed to be reborn into a favorable

realm; conversely, if the mind is dominated by anger, fear, or strong attachment, this may lead to an unfavorable rebirth (Lati Rinbochay & Hopkins, 2016). This teaching provides the direct doctrinal basis for the practice of deathbed chanting (*hộ niệm*, or *trợ niệm*), which is widespread within the Pure Land tradition of contemporary Vietnamese Buddhism.

3.3. Proximate karma and the intermediate state: the process of consciousness at the moment of death according to the Tibetan Book of the Dead

The most systematic Buddhist text on the process of consciousness at the moment of death is the Tibetan Book of the Dead, a text belonging to the Nyingma tradition of Tibetan Vajrayāna, traditionally attributed to the teachings of Padmasambhava in the eighth century and rediscovered centuries later by Karma Lingpa (Lionsroar, 2024). The text is read aloud beside the newly deceased as a guide to help consciousness recognize the nature of the experiences unfolding before it and thereby attain liberation, or at least a favorable rebirth.

The process after death is described as unfolding across three principal stages. The first, the Chikhai Bardo (the bardo of the moment of death), is when consciousness encounters the “Clear Light” of ultimate reality; a person who recognizes and merges with this light immediately attains instantaneous liberation. The second, the Chönyid Bardo (the bardo of the nature of reality), is when consciousness, if liberation was not attained at the previous stage, successively encounters “peaceful deities” and “wrathful deities.” These deities are interpreted not as objective external entities but as projections of consciousness itself, embodiments of the emotions and karmic forces accumulated during life. The third, the Sidpa Bardo (the bardo of rebirth), is the process by which con-

sciousness, driven by karmic force, seeks out and enters a new body for rebirth.

The intermediate state is held to last a maximum of forty-nine days, divided into seven seven-day cycles; if, at the end of each seven-day cycle, consciousness has not yet found a suitable place of rebirth, the process may repeat itself as a kind of “dying and reviving” within the intermediate state itself. Chapter 7 of the Sutra of the Great Vow of Kṣitigarbha Bodhisattva (Kinh Địa Tạng), “Benefiting the Living and the Dead,” describes the state of consciousness after death and its transformation across the seven weekly periods (forty-nine days): the newly deceased, not yet having discerned the karmic consequences of their deeds, drift through this period as though deaf and unseeing, while their own karma renders judgment upon them according to the deeds they committed, without the slightest error (Kinh Địa Tạng, Chapter 7). A separate line of commentary, grounded in the Yogācāra and Abhidharma systems, holds that the intermediate body lasts a maximum of only seven days, after which consciousness must necessarily be reborn into some realm, reflecting the internal diversity among interpretive schools within the Buddhist tradition itself, a point that should be borne in mind to avoid oversimplifying “the Buddhist view” into a single, uniform system.

3.4. Comparing NDE in modern research and the Tibetan Book of the Dead

When Western researchers systematically compared the content of the Bardo Thödol with modern NDE research, they identified a number of parallels. Becker (1985) showed that both traditions describe: (i) an experience of consciousness separating from the physical body immediately after, or close to, the moment of death; (ii) the appearance of a brilliant light, which

both traditions identify with an ultimate or sacred reality; (iii) encounters with beings, in NDE typically deceased loved ones or a “being of light,” and in the Bardo Thödol the peaceful and wrathful deities; and (iv) a process of moral evaluation of the life just lived, the life review in NDE, and the confrontation with self-projected karmic forces in the bardo. Carl B. Becker argued that purely neuroscientific models (such as cerebral anoxia, endorphin release, or temporal lobe dysfunction) fail to adequately account for the complexity of the near-death experience, particularly the combination of a universal core structure with individual and cultural variation. He proposed that Buddhist Idealism, especially Yogācāra philosophy and the Mahāyāna Buddhist cosmology, offers a superior explanatory model (Becker, 1993).

Alongside these structural similarities, important differences also exist. First, regarding the specific content of the experience: whereas modern NDE research typically describes an encounter with a single, unconditionally compassionate being of light, the Bardo Thödol describes a complex sequence of successive peaceful and wrathful deities, reflecting a richly symbolic cosmology with a far more elaborate classificatory structure than modern NDE reports. Second, the Bardo Thödol is essentially a practical manual, read aloud to the dying or newly deceased, intended to bring about liberation, whereas modern NDE research consists of spontaneous retrospective accounts with no direct religious instructional purpose. Third, traditional Tibetan near-death accounts tend to place greater emphasis on morally instructive motifs, journeys to hell realms to witness the consequences of unwholesome karma, compared with contemporary Western NDE research, which tends to emphasize peace and unconditional love over punitive imagery.

Theoretically, the structural convergence between these two independently developed bodies of knowledge, one an ancient contemplative religious tradition, the other modern clinical

research, may be explained along at least three, not mutually exclusive, lines. The first, the naturalistic position, holds that this convergence reflects a universal neurophysiological mechanism of the human brain when confronting hypoxia or functional collapse, culturally encoded in different ways but sharing a common biological foundation. The second, Becker's (1993) position, holds that the convergence reflects a genuine structure of the process of consciousness as it detaches from bodily constraints, a structure that both the Buddhist meditative tradition (through millennia of systematic introspective observation) and modern biomedical science (through clinical interviews) are approaching from different methodologies but pointing toward the same underlying phenomenon. The third position urges caution against the risk of "over-interpretation of convergence", that is, exaggerating the surface-level similarity between two textual systems written in very different metaphorical and symbolic language, while overlooking important structural differences.

3.5. Near-death experience in meditation

The ability to generate a near-death experience deliberately, repeatedly, and observably under controlled conditions addresses one of the greatest methodological limitations of traditional NDE research, which depends entirely on spontaneous, unplannable clinical cases, and represents a major contribution of Buddhism to this field. Ancient Buddhist texts, particularly within the Tibetan Nyingma tradition, describe specialized meditative techniques that allow practitioners to actively and controllably experience the process of "dying" and the stages of the bardo while still alive, as a form of spiritual preparation for actual death (Van Gordon et al., 2018).

Van Gordon and colleagues' (2018) three-year longitudinal study, involving twelve advanced Buddhist meditators, compared meditation-induced near-death experience (MI-NDE) against two other meditation practices serving as control conditions within the same participant group. Findings showed that, relative to the control conditions, MI-NDE produced significantly greater increases over time in experiential depth (measured by a standardized NDE scale), mystical experience, and "non-attachment", a core psychological quality in Buddhist teaching. This study carries important methodological implications: it demonstrates that the phenomenological features of NDE do not necessarily require an actual life-threatening physiological state (such as cardiac arrest or cerebral hypoxia) to arise, and can instead be produced through altered states of consciousness induced by deep meditation, a finding consistent with the extended-naturalist hypotheses of consciousness discussed in earlier research, while also providing empirical support for the traditional Buddhist claim that meditation can access layers of conscious experience similar to the dying process.

Complementing this line of research, neuroimaging studies of advanced meditators practicing visualization of the "being of light" typical of NDE have recorded increased gamma-wave activity and electrophysiological changes in brain regions associated with positive emotion, mental imagery, and spiritual experience (Beauregard et al., as cited in Van Gordon et al., 2018), suggesting a plausible neural mechanism linking Buddhist contemplative practice with the models of perimortem gamma-wave activity discussed in the standard NDE literature. This research connects meditation-induced near-death experience (MI-NDE) with the capacity to assess real-time neurological activity in advanced Buddhist meditators. In other words, rather than constituting merely a metaphysical doctrinal system separate from empirical science, the Buddhist meditative tradition may function as a millennia-old contem-

plative laboratory, providing data and testable hypotheses for contemporary neuroscience of consciousness. A range of meditation methods exist today; among them, the Tibetan Vajrayāna tradition's Mahāmudrā practice is held to bear the most profound connection to the near-death experience (Chang, 1993).

3.6. Vietnamese Buddhism and the near-death phenomenon

Vietnamese Buddhism, characterized by a fusion of Zen, Pure Land, and Tantric elements, deeply interwoven with ancestor worship and folk Taoism (the “harmonious confluence of the Three Teachings”), has received the near-death phenomenon in a manner somewhat distinct from both the Tibetan context and the Western scientific context. The concepts of proximate karma and the intermediate state, although originating in Indian Buddhist doctrine and most systematically elaborated within the Tibetan tradition, have been localized and integrated into funerary practice, prayers for the deceased, and especially deathbed chanting (*hộ niệm* or *trợ niệm*), a widespread practice within the Pure Land tradition of Vietnamese Buddhism, in which family members and fellow practitioners chant the name of Amitābha Buddha beside the dying or newly deceased, in the belief that the sound of this chanting can help orient the consciousness of the dying person, give rise to wholesome proximate karma, and support their rebirth in the Western Pure Land.

The practice of deathbed chanting directly reflects the application of the doctrine of proximate karma to a practical context: following the logic of this teaching, since the state of mind at the moment nearest death decisively influences the realm of rebirth, creating a positive acoustic, emotional, and spiritual environment around the dying person, through chant-

ing, reminders to let go of attachment, and the maintenance of calm, is regarded as a concrete act of compassion capable of directly shaping the dying person's subjective experience in their final moments. Structurally, this practice bears a notable functional resemblance to the Tibetan practice of reading the Bardo Thödol aloud beside the newly deceased, although the specific doctrinal content and ritual form differ.

Within contemporary Buddhist writing, the Zen teacher Thích Nhất Hạnh (1998), in *No Death, No Fear*, presented an approach grounded in the doctrines of non-self and dependent origination to interpret the nature of death, not as an absolute cessation but as a form of “continuation” in other forms, much as a cloud does not “die” but merely transforms into rain. Although this interpretation does not directly address NDE phenomenology in a clinical sense, it offers a psychological-spiritual framework that can help reduce the fear of death, and may hold practical value for those who have undergone a near-death experience and are seeking meaning in it, as well as for end-of-life palliative care more broadly.

At the same time, it should be noted that in Vietnam, folk narratives of people who “died and came back to life” or “passed through the realm of the dead and returned” — which appear sporadically in the press and on social media, are typically interpreted through the lens of folk Buddhism blended with ancestor-worship belief, rather than through the formal doctrinal framework of proximate karma and the intermediate state described above. This reflects a notable gap between specialized Buddhist scholarship, generally transmitted only within dedicated monastic training environments, and popular public understanding of the near-death phenomenon, a gap that more systematic dissemination of Buddhist knowledge on this subject could help narrow.

3.7. The value and limits of the Buddhist approach: implications for end-of-life care

The Buddhist approach to near-death experience offers at least three distinctive contributions. First, the doctrines of non-self and dependent origination point to a third path beyond the dilemma of choosing between “consciousness as merely a product of the physical brain” and “consciousness as an unchanging, independently existing soul”, the two poles that typically frame Western naturalist/supernaturalist debate. In Buddhism, what continues across lifetimes is not a fixed entity but a dynamic causal stream, a position arguably closer to process-based models of extended naturalism in contemporary philosophy of mind than to classical soul-body dualism. Second, the concept of proximate karma places ethics at the center of the near-death phenomenon in a way that differs from the “life review” in NDE: rather than remaining merely a passively observed phenomenological feature, proximate karma becomes the basis for active practice, deathbed chanting, aimed at deliberately shaping the state of consciousness at the moment of death, opening a dimension of practical application that purely neuroscientific models do not directly offer.

Third, Buddhist meditation, through the phenomenon of meditation-induced near-death experience, demonstrates a trainable contemplative method that allows individuals to become familiar, in a controlled manner, with states of consciousness resembling the near-death state before having to confront actual death, thereby potentially reducing the fear and panic that often accompany critical clinical situations. This points toward a concrete application for palliative and end-of-life care in Vietnam: breath meditation, contemplation of impermanence, and Buddhist-derived deathbed chanting practices could effectively complement Western-model clinical psychological interventions, particularly within Vietnamese

society, where the majority of the population remains influenced by Buddhist thought.

This approach nonetheless carries significant limitations. First, Buddhist teachings on karma, rebirth, and the intermediate state are metaphysical claims that cannot be verified by empirical scientific method in the strict sense. Applying a Buddhist framework to interpret NDE should therefore be understood as one among several cultural-spiritual interpretive lenses of practical and humanistic value, rather than as a scientific explanation substituting for neuroscientific models. Second, caution is warranted against the risk of over-interpreting the similarity between modern NDE and the Bardo Thödol, and against mechanically imposing this text's classificatory framework onto every near-death experience recorded in a modern medical context. Third, considerable interpretive diversity exists even within the Buddhist tradition itself, making it a methodological risk to present "the Buddhist view" as a single, oversimplified, unified whole.

3.8. "Special abilities" after near-death experience: the cases of Phan Thị Bích Hằng and Đỗ Bá Hiệp

Buddhism, with its contemplative approach, does not offer an interpretation of the near-death phenomenon from the standpoint of those who survive it and continue their lives afterward, in the way that Western NDE research does. Vietnam has no study approaching near-death cases through quantitative statistical methods, but numerous cases of near-death experience have been recorded, including cases in which special abilities were reported to have arisen afterward.

"Special ability," also referred to as extrasensory or psychic ability, denotes the capacity to engage with dimensions ordinarily inaccessible to people, such as communicating with the

deceased, seeing through the ground, and locating the remains of missing persons. The modern phenomenon of “psychics who search for fallen soldiers’ remains” developed most strongly from the mid-1990s to the early 2010s, sponsored by the Union of Science and Technology Associations for Applied Informatics (UIA, established 1993) and the Center for Research into Human Potential. According to UIA, of more than 300 people claiming psychic ability, only around 15 (fewer than 5%) were assessed as “genuine”; even within this group, the self-reported accuracy rate was only 60–70%, with one source recording a maximum of 75% specifically for Phan Thị Bích Hằng (Dân Việt, 2013).

Phan Thị Bích Hằng (born 1972, Ninh Bình) recounts that in the summer of 1990, at the age of 17–18, she was bitten by a rabid dog together with a friend; her friend died, while she lay in a coma for three days and nights before “coming back to life” and discovering an ability to “communicate with those in the spirit world.” She describes having spent nearly a year personally verifying that this ability was “not a hallucination, but real,” with the turning point being the rediscovery of her family’s four-generation ancestral grave in April 1990. Over the following two decades, she became the most well-known figure in this field, reportedly involved in identifying thousands of sets of remains, including those of the writer Nam Cao and, notably, the case of searching for the “skull” of martyr Phùng Chí Kiên.

Đỗ Bá Hiệp, about whom less public information is available, is said to have developed his ability following a war wound, in contrast to Bích Hằng’s civilian biological crisis (Báo Công an nhân dân, 2011). He had a speech impairment but was reportedly able to locate objects buried deep in the ground with the «naked eye,» as illustrated by the case of finding the grave of the father of Mr. Phan Huy Nho, based on “faith,” “intuition,” and indirect leads rather than independently published biological testing. A 2011 article in Công an nhân dân concluded that the “earlier generation of psychics” — citing precisely these two examples

— typically acquired their ability through a “biological impact,” whereas later generations more often acquired their ability “with assistance” or through training — an indigenous classification that itself confirms that the “biological/near-death crisis → special ability” motif is a narrative template widely recognized within the psychic-practice community itself.

These special or psychic abilities following near-death experience are not, however, constant or unchanging. The duration for which such abilities persist is reported to vary among psychics. Most psychics cannot identify why they possess this ability, nor do they recognize any accompanying physical change in themselves after their near-death experience. To date, the special abilities of Phan Thị Bích Hằng and Đỗ Bá Hiệp have not continued to be documented through verifiable, empirical activity.

By contrast, in cases involving Buddhist meditation practice, special or psychic abilities that arise appear capable of persisting continuously or continuing to develop from the time they are first recorded. This raises a question about the mechanism by which special abilities arise that allow access to fields of information beyond the ordinary range of human perception. Buddhist scripture offers no direct explanation for this question; it is instead attested only through individually transmitted experience, passed from person to person. Interviews with individuals who report special abilities, such as clairvoyance or access to information fields beyond the ordinary natural environment, following a period of meditation practice do not yield an explanation from a scientific standpoint. This remains a gap requiring further research.

IV. Conclusion

This article has systematized and compared the Buddhist approach to the near-death experience, on the basis of teachings

on karma, rebirth, non-self, and the intermediate state as most fully recorded in the Tibetan Book of the Dead, while situating this approach in relation to international NDE phenomenology and the context of Vietnamese Buddhist practice. The analysis yields three main findings. First, there are notable structural parallels between the account of the bardo process in Tibetan Buddhist scripture, formed more than a thousand years before the emergence of modern near-death studies, and NDE reports gathered through contemporary clinical methods: both describe the separation of consciousness from the body, the appearance of light associated with an ultimate reality, encounters with beings, and a process of internally generated moral evaluation of the life just lived. At the same time, important differences in specific content, textual function, and the degree of emphasis on moral instruction caution researchers against over-interpreting this convergence.

Second, the phenomenon of meditation-induced near-death experience, confirmed through controlled empirical research on advanced Buddhist meditators, offers a valuable methodological bridge, enabling the study of NDE's phenomenological features under repeatable, controllable conditions, thereby partly overcoming an inherent limitation of traditional near-death studies, which can otherwise rely only on spontaneous clinical cases. Third, in Vietnam, the doctrine of proximate karma has been deeply localized into the practice of deathbed chanting within the Pure Land tradition, representing a practical, proactive model for applying Buddhist knowledge to the care of the dying, fundamentally different in character from the largely descriptive and passive nature of most neuroscientific models of NDE.

Methodologically, this article holds that the Buddhist approach to NDE should not be placed in exclusive competition with the neuroscientific or analytic-philosophical models presented in related research, but should instead be regarded as

a complementary framework of knowledge, offering distinct value in two respects that purely empirical science finds difficult to access: first, a system of contemplative practice refined over millennia, capable of preparing individuals psychologically and spiritually to face death; and second, an integrated ethical framework that transforms understanding of proximate karma into a motivation for concrete compassionate action, deathbed chanting, toward the dying and their families. On this basis, the article recommends three directions for research and practice in Vietnam: (i) promoting interdisciplinary research combining Buddhist studies, clinical psychology, and the neuroscience of meditation, particularly empirical research on meditation-induced near-death experience among Vietnamese practitioners; (ii) selectively integrating, in accordance with medical ethics, Buddhist-derived contemplative and deathbed-chanting practices into palliative and end-of-life care, with respect for the religious choices of patients and their families; and (iii) disseminating more systematic Buddhist knowledge of proximate karma and the intermediate state to the public, in order to narrow the gap between specialized Buddhist scholarship and popular understanding of the near-death phenomenon, which remains largely shaped by fragmentary folk interpretations.

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Consciousness Beyond Matter: Phenomenology of a Near-Death Experience (NDE) During Sudden Cardiac Arrest – A Patient-Perspective Case Study and a Challenge for Modern Medicine

Abstract. This chapter presents an autoethnographic case study of a near-death experience (NDE) resulting from sudden cardiac arrest (SCA) induced by hypovolemic shock. The qualitative analysis focuses on the phenomenological components of the experience: the preservation of hyper-lucid consciousness despite critical cerebral hypoxia, the phenomenon of non-local apparent paranormal perception (veridical perception), a simultaneous holographic life review, and the somatic re-entry mechanism along with its psychosomatic aftermath. Drawing from my post-resuscitation journey and corroborating it with existing clinical literature, I propose actionable clinical and research directives regarding the necessity of systematic psychological support for NDE experiencers and the critical need to revise the reductionist paradigm of consciousness in contemporary neuroscience.

Keywords: near-death experience (NDE), sudden cardiac arrest (SCA), veridical perception (AVP), post-resuscitation integration, autoethnography.

1. Introduction and Clinical Context

In the spring of 1999, I faced a critical, life-threatening medical emergency. Following oncological surgery (resection of uterine carcinoma), I developed severe secondary coagulopathy, resulting in recurrent internal hemorrhaging and profound systemic anemia.

On the day of the critical event, in a state of severe physical exhaustion at home, I attempted to stand up from bed. After taking only a few steps, I collapsed in the hallway, losing consciousness. The final sensory input registered by my brain in waking consciousness was the sight of a pool of blood spreading across the floor tiles. Sudden cardiac arrest (SCA) ensued as a consequence of severe hypovolemic shock.

According to subsequent hospital records, advanced cardiopulmonary resuscitation (CPR) performed by the clinical team lasted five minutes. However, the total duration of compromised or absent cerebral perfusion—accounting for pre-hospital collapse, emergency notification, and transit—was substantially longer.

In mainstream neurophysiology, cerebral hypoxia of this magnitude leads to isoelectric electroencephalographic (EEG) activity within 10 to 20 seconds, precluding structured cognitive processing (Parnia et al., 2014; van Lommel et al., 2001). Despite this, what followed was a highly structured, hyper-lucid mental experience.

2. Phenomenology of the Experience

The subjective characteristics of my experience closely align with the advanced criteria identified on the Greyson NDE Scale (Greyson, 1983).

2.1. Psychosomatic Separation and Hyper-Lucid Cognitive Functioning

Upon the cessation of my physical body's vital functions, there was neither an extinction of awareness nor a clouding of thought processes. Instead, I experienced an immediate dissociation of consciousness from my somatic frame.

Although I found myself in a space devoid of physical illumination, my cognitive, analytical, and self-reflective capabilities exhibited unprecedented clarity and sharpness, markedly exceeding everyday waking consciousness. This state was accompanied by the complete dissolution of fear and the onset of profound emotional equilibrium, peace, and boundless love.

2.2. Non-Local Consciousness and Apparent Paranormal Perception (AVP)

A defining characteristic of this state was the non-locality of consciousness: spatial displacement required no physical locomotion, occurring instantaneously via targeted intentional thought. I experienced phenomena categorized in the academic literature as veridical perception or Apparent Paranormal Perception (Holden, 2009):

- **Perception of My Husband's State:** I found myself positioned above my husband's vehicle as he was driving around the hospital perimeter. Observing the scene from an aerial perspective, I registered the street layout and the precise trajectory of the car. Concurrently, I had direct, simultaneous access to the full spectrum of his affective states: acute shock, paralyzing muscular tension, and a cascade of catastrophic thoughts concerning my prognosis and our family's future. My perceptive faculties felt manifoldly amplified, dominated by an intense desire to

convey peace and reassurance. However, I encountered an absolute communication barrier; in my non-physical form, I could neither alter his sensory perception nor emit any physically detectable signal.

- **Observation of My Children and Relational Insight:** Through a subsequent act of will, I manifested in my home in the presence of my sons. I perceived firsthand that emotional bonds operate as a fundamental attractive force at the level of consciousness. Beyond their grief, I registered their unfulfilled need for emotional security and shared daily presence. This triggered a swift, unsparing deconstruction of my previous life priorities: I realized that my former dedication to material accumulation and social status—which I had rationalized as maternal care—had come at the expense of authentic emotional intimacy. This realization instilled an acute sense of responsibility and an uncompromising determination to return to physical life to reconfigure my role as a mother.
- **Perception of Concurrent Events at My Parents' Home:** Shifting my focus to my parents allowed me to register two parallel event sequences within their household simultaneously: my mother hanging up the telephone receiver and walking to the kitchen to turn off soup boiling on the stove, alongside my father opening the garage door and backing his car out. At that exact moment, I witnessed their dog running away into the adjacent woods, pinpointing the animal's exact spatial coordinates despite the distance. I simultaneously apprehended the mental states of both parents, who were oscillating between distress over the news of my critical condition and anxiety regarding the escaped dog.

2.3. Transcendental Interaction and Holographic Life Review

In a subsequent phase, I encountered cognitive events that challenged classical epistemological boundaries:

- **Encounter with a Deceased Ancestor:** I engaged in direct telepathic communication with my late grandfather. He appeared in the physical form familiar to me from his lifetime, yet explicitly conveyed that this form was merely a temporary projection of a multidimensional identity unconstrained by biological senescence or spatial limitations.
- **Panoramic Review of Self and Identity (*Life Review*):** My perception of „Self” synthesized my entire ontogenetic progression into a single, cohesive, simultaneously accessible construct. I was simultaneously an embryo, an infant, a young girl, and an adult woman—every movement, thought, gesture, and emotion permanently recorded within an experiential matrix. I could review this sequence at will, accessing the somatic-affective states bound to each moment and witnessing their ripple effects on the emotional states of others.
- **Cognitive Complexity of Reality:** My cognition functioned well beyond the linear conceptual models of classical science. Mathematics, algorithms, and physical laws presented themselves as foundational building blocks of the architecture of reality. In modern computational terminology, the information processing capacity of that state bears striking resemblance to quantum systems—capable of simultaneous, multidimensional parallel operations that would require millennia under classical deterministic paradigms.

3. Somatic Reintegration and Life Transformation

The decisive factor compelling my return was love for my children and the imperative to heal family relationships. After observing my physical body from an external perspective, an abrupt, almost mechanical re-association occurred.

The return to matter was intensely dysphoric and traumatic. I was hit by an overwhelming surge of physical pain, and my consciousness registered the biological body as an exceptionally heavy, crude machine—subjectively comparable to a cumbersome tractor.

The transformative dimension of the experience manifested as an enduring value shift, consistent with documented post-NDE phenomena (Noyes et al., 2009). I largely divested from purely materialistic pursuits, channeling my energy into fostering deep, multi-generational relational bonds.

4. Integrative Challenges and Implications for Science and Medicine

Following my physical recovery, I encountered severe social and institutional resistance. The clinical community's reluctance to acknowledge the persistence of cognitive and perceptual continuity during asystole induced a profound sense of epistemic isolation. Drawing from these insights, I present two core imperatives for medical practice and scientific inquiry:

4.1. Clinical Imperative: Structured Psychological Protocols for Post-NDE Patients

There is an urgent need to establish standardized psychological support protocols across intensive care, cardiology, and surgical

units for resuscitated patients (Foster et al., 2009). A near-death experience represents an ontological revolution; leaving patients without informed debriefing—frequently compounded by their fear of psychiatric misdiagnosis—creates severe risks of secondary adjustment disorders and existential alienation.

4.2. Research Imperative: Moving Beyond Reductionism in Consciousness Studies

My experience, mirrored by thousands of documented cases across the medical literature (Parnia et al., 2014, 2023; van Lommel et al., 2001), presents an empirical challenge to the premise that consciousness is merely an epiphenomenon of neurochemical processes. The reality of hyper-lucid cognition and veridical perception under cerebral anoxia demands that neuroscience and physics remain receptive to non-local models. Given that modern physics has firmly established the equivalence of mass and energy, rigorous scientific inquiry must treat post-cardiac-arrest phenomenological accounts not as anomalies to dismiss, but as foundational primary data regarding the nature of human consciousness.

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ASSOC. PROF. JOANNA RÓŻYCKA-TRAN

Institute of Psychology, University of Gdańsk

ORCID: 0000-0003-1131-3910

e-mail: joanna.tran@ug.edu.pl

The Scientific Paradigm from a Cross-Cultural Perspective: Western Naturalism and Holistic Conceptions of Consciousness in Eastern Traditions

Abstract. Near-death experiences (NDEs) are among the most intriguing phenomena currently investigated at the intersection of psychology, neuroscience, medicine, and philosophy. The debate surrounding their nature has typically focused on whether they are exclusively products of neurobiological processes occurring in a critically compromised brain (naturalism), or whether they point to the need for a substantial expansion of current models of consciousness. In recent years, numerous competing explanations have emerged, ranging from neurobiological models (Martial et al., 2025) to various conceptions of extended naturalism, dualism, and idealism (Suffczyński, 2026). However, the perspective of cross-cultural psychology has received comparatively little attention in this debate. Questions concerning the nature of consciousness are intrinsically linked to culturally shaped ways of organizing and processing knowledge about human beings, the relationship between mind and body, and the underlying assumptions of science itself. Culture influences not only how individuals interpret experiences, but also which research questions are regarded as legitimate, which research methods are preferred, and which explanations are considered admissible (Berry, 1969; Berry et al., 2011; Boski, 2009). The aim of this chapter is therefore to examine NDEs from the perspective of cross-cultural psychology, because the

contemporary debate surrounding near-death experiences concerns not only the nature of NDEs themselves, but also the cultural boundaries of the dominant scientific paradigm. Of particular relevance are the distinct cognitive traditions of the West and East, which differ in their conceptualizations of the human being, consciousness, and the relationship between the individual and reality, as well as in patterns of information processing (social cognition).

Keywords: cross-cultural psychology, consciousness, NDE, scientific paradigm, Asia

Is Science Culturally Neutral?

Contemporary science is often presented as the most universal system for acquiring knowledge about reality through empirical methods, including observation, measurement, experimentation, variable control, and the replicability of findings. From the perspective of cross-cultural psychology, however, a more fundamental question arises: is the very definition of what can be considered an object of scientific inquiry genuinely culturally neutral?

Cross-cultural psychology investigates similarities and differences in human psychological functioning across cultural contexts, as well as the relationships between culture/environment and psychological processes (Berry et al., 2011). Culture can be understood as a system of values, beliefs, meanings, practices, and behavioral patterns transmitted socially and across generations. It is not merely an external context in which human beings function; it also influences which questions are regarded as meaningful, which experiences are interpreted as significant, and which ways of explaining reality are considered credible. In this sense, science itself operates within a particular cultural environment. This does not mean that the laws of physics or the results of experiments are “Western” or “Eastern.” Rather, historically shaped systems of values,

ways of conceptualizing human beings, and epistemological assumptions may influence the selection of research problems, the definitions of variables, and the criteria by which particular forms of evidence are regarded as significant (Berry et al., 2011; Boski, 2009).

This issue becomes particularly apparent in research on consciousness. If consciousness is defined primarily as a function of brain activity, the natural consequence is to search for its neural correlates. If, however, the relationship between consciousness, the brain, the body, and the environment is assumed to be more complex, the scope of research questions expands. This does not automatically entail accepting the proposition that consciousness can exist independently of the brain. Rather, it means that such a possibility may be treated as a research hypothesis whose status should be determined on the basis of empirical evidence.

Kuhn (1962) argued that the development of science takes place within particular paradigms, understood as relatively coherent systems of concepts, methods, and assumptions that determine which problems are regarded as scientific and which solutions are considered admissible. In this sense, a paradigm is not merely a set of methodological procedures; it also encompasses ontological and epistemological assumptions concerning the nature of reality.

Cross-cultural psychology extends this perspective by suggesting that the very organization of knowledge may also be partly culturally embedded, which in turn shapes individuals' conceptions of the "Self" (Markus & Kitayama, 1991). Culture therefore influences cognitive processes, values, beliefs, and ways of interpreting reality. This means that different cultural traditions may generate different ways of defining research problems.

This distinction is particularly important in research on consciousness, because equating methodological naturalism

with ontological naturalism may lead to the assumption that anything that cannot currently be explained by known biological mechanisms must necessarily be an illusion or an interpretive error. Yet the absence of a complete explanation of a particular phenomenon constitutes neither evidence of its supernatural nature nor evidence of its nonexistence. It simply means that the current theoretical model encounters limitations that require further investigation. From the perspective of cross-cultural psychology, epistemological openness therefore becomes particularly important. This does not mean accepting any claim as true, but rather maintaining a willingness to distinguish between what has been empirically demonstrated and what remains a hypothesis requiring further verification. In this sense, questions concerning the nature of consciousness and near-death experiences can be treated as scientific problems even when definitive answers are not yet available (Kuhn, 1962).

Western and Eastern Models of Consciousness

One of the most important problems in contemporary human sciences concerns the relationship between mind and body. In the Western tradition, this problem was shaped for centuries by Cartesian dualism, which posited the distinctness of mental and material substances (Descartes, 1984). The development of biology, experimental psychology, and neuroscience subsequently shifted the emphasis toward models that locate consciousness primarily in processes occurring within the brain. Contemporary research on the neural correlates of consciousness documents close relationships between particular mental states and the activity of neural structures (Chalmers, 2000; Dehaene et al., 2017). These findings represent an important step toward understanding the biological foundations of

consciousness; however, they do not resolve the fundamental question of how neural activity is related to subjective, qualitative experience (Chalmers, 2000).

In many traditions of East Asia, the relationships between consciousness, the body, and the environment have been conceptualized differently. Buddhist, Taoist, and Confucian traditions developed systematic introspective practices, treating consciousness as a domain of direct observation and experience. In contrast to models dominant in modern Europe that focused on the autonomous individual, many Asian traditions emphasized the relational character of human functioning and the interdependence of the psyche, body, social environment, and broader order of reality (Boski, 2009).

From the perspective of consciousness research, what is particularly important is that different cognitive traditions may lead to different ways of formulating research questions. In the Western tradition, a central question has often concerned the mechanisms underlying the emergence of consciousness. In Asian traditions, greater attention has been devoted to ways of directly investigating consciousness through practice and experience. These differences need not lead to conflict; rather, they may provide a basis for complementary research strategies.

Analytical and Holistic Modes of Cognition

One of the most important contributions of cross-cultural psychology to the understanding of cultural differences is the concept of analytical and holistic cognition (Nisbett et al., 2001). Research conducted across different cultures indicates that cognitive styles may differ in the ways information is organized and reality is interpreted. Analytical cognition is characterized by a tendency to separate objects from their context, classify them according to their attributes, and analyze cause-and-

effect relationships. This style is more frequently observed in individualistic cultures, particularly in Western countries. Holistic cognition, by contrast, focuses on relationships among elements, situational context, and interdependencies between objects. It has been more frequently identified in East Asian cultures (Nisbett et al., 2001). More recent research, however, points to greater diversity in cognitive styles than would be suggested by a simple East–West dichotomy (Lacko et al., 2025). Analytical and holistic cognition should therefore be understood as tendencies that may occur with varying degrees of intensity rather than as fixed characteristics of entire populations.

Similar conclusions emerge from research on independent and interdependent selves (Markus & Kitayama, 1991). Within the independent self-construal, the individual is perceived primarily as an autonomous agent possessing relatively stable characteristics. Within the interdependent self-construal, greater importance is assigned to social relationships, social roles, and interpersonal context. These differences affect not only how the self is understood, but also how psychological processes are interpreted. In the context of consciousness research, this distinction becomes particularly significant. Within an analytical model, consciousness may be conceptualized primarily as a property of the individual brain. A holistic perspective, by contrast, encourages consideration of the broader context, including the body, social relationships, and the environment in which the individual functions.

This does not imply rejecting neuroscience or the biological foundations of consciousness. Rather, it suggests the possibility of expanding the level of analysis. Instead of limiting explanations exclusively to processes occurring within the brain, researchers may also consider relationships among the organism, the environment, and experience. Such an approach is partly consistent with contemporary theories of embodied

cognition, which emphasize interactions among the brain, body, and environment (Varela et al., 1991).

Cultural Beliefs and the Interpretation of Reality

No experience is interpreted entirely independently of pre-existing systems of meaning. One of the fundamental assumptions of cognitive psychology is that human beings organize incoming information through cognitive schemas that enable them to assign particular meanings to experiences (Berry et al., 2011; Markus & Kitayama, 1991). In this context, culture functions as an interpretive system. It influences how emotions, social relationships, health, illness, death, and unusual experiences are understood. The same physiological experience may be interpreted as a medical symptom, a religious experience, a mystical experience, or an altered state of consciousness, depending on the cognitive categories available to the individual (Boski, 2009). The fact that culture influences the interpretation of an experience does not mean that it explains the experience in its entirety. This distinction is particularly important in the case of near-death experiences, which display both elements shared across cultures and substantial variation in their interpretation.

Meditation as a Bridge Between Neuroscience and Experience

A particularly interesting example of constructive dialogue between Eastern traditions and contemporary science is provided by research on meditation. In Buddhist traditions, meditation developed primarily as a practice of self-knowledge, attentional training, and the regulation of mental states. Contemporary

psychology, by contrast, analyzes meditation as a cognitive and neurophysiological process amenable to empirical investigation (Lutz et al., 2008). Research conducted in naturalistic practice settings is particularly valuable because it enables psychological processes to be examined without separating them from their cultural context. An example is research conducted in Vietnamese Trúc Lâm Zen monasteries (Różycka-Tran et al., 2014), including the use of electroencephalography, which identified specific EEG activity patterns associated with meditation practice, including the co-occurrence of increased alpha activity and changes in theta and beta activity (Różycka-Tran et al., 2025, 2026; Kurek et al., 2025). The significance of this research extends beyond meditation itself. It demonstrates that the cultural meaning of a practice and its neurophysiological correlates can be considered simultaneously. In other words, a description of an experience embedded in a particular cultural tradition need not be incompatible with its empirical investigation. From the perspective of this chapter, meditation provides an important example of the integration of different levels of analysis. If it is possible to investigate subjective meditative experience using neuroscientific methods, an analogous strategy may also be applied to other unusual states of consciousness, including near-death experiences. In both cases, the key challenge is to integrate biological, psychological, and cultural data within a more multidimensional model of consciousness.

Consciousness/NDE as a Boundary Problem for Psychology

Despite enormous advances in neuroscience, cognitive psychology, and the brain sciences, consciousness remains one of the most complex problems in contemporary science. This is particularly true of the question concerning the relationship

between biological processes and subjective experience. Research on neural activity enables increasingly precise identification of correlates of consciousness, but it does not ultimately determine what consciousness itself is or how first-person experience is related to biological processes occurring within the human (Chalmers, 2000; Dehaene et al., 2017). Several major groups of theories of consciousness can be distinguished in the scientific literature. Materialist and neurobiological approaches remain dominant, assuming that consciousness results from brain activity (Baars, 1988; Dehaene, 2014). At the same time, non-reductive and idealist theories, as well as models that treat consciousness as a property more fundamental than biological processes, are also being developed (Suffczyński, 2026). Despite the differences among these positions, they share the recognition that the current state of knowledge does not yet provide a complete solution to the problem of consciousness.

From the perspective of cross-cultural psychology, it is particularly interesting that many contemporary debates concerning consciousness resemble questions that have been present for centuries in the philosophical and religious traditions of different cultures. Questions concerning the relationship between consciousness and the body, the nature of the self, the possibility of transforming consciousness, and the existence of experiences that transcend ordinary waking consciousness have appeared both in Western philosophy and in Asian traditions. Research on consciousness therefore requires not only increasingly sophisticated measurement methods but also reflection on the theoretical assumptions that guide the interpretation of the data obtained.

Near-Death Experiences as a Test of the Boundaries of the Paradigm

Near-death experiences (NDEs) represent a distinctive case for consciousness research because they occur in situations involving serious threats to life and may involve exceptionally intense subjective experiences. The literature describes, among other phenomena, a sense of separation from the body, altered experiences of time, unusually intense perception, a sense of unity, encounters with persons or beings, and autobiographical or transformative experiences. Contemporary research increasingly emphasizes the need to distinguish the experience itself from its subsequent interpretation.

In 2025, Martial et al. proposed a neurobiological model of NDEs integrating processes associated with, among other factors, changes in cerebral blood flow, hypoxia, hypercapnia, alterations in neuronal excitability, neurotransmission, dissociative processes, and psychological mechanisms (Martial et al., 2025). This model represents an important attempt to provide a naturalistic explanation of NDE phenomenology. At the same time, the publication prompted discussion: O'Grady and Varghese (2025) argued that a neurocentric model may overlook some central features of NDE phenomenology and may go too far in assigning causal functions to specific neurochemical mechanisms. Engmann (2025), in turn, highlighted methodological problems concerning the definition of NDEs, criteria for study selection, and the difficulties involved in attributing complex psychological experiences to specific neurotransmitters. This debate is methodologically valuable precisely because it does not reduce the issue to a simple conflict between "science" and "spirituality." Rather, it represents a disagreement within science itself concerning how far the interpretation of empirical data can legitimately be taken. Parnia et al. (2024; 2026) additionally proposed the term "re-

called experiences of death” (REDs), emphasizing the need to investigate experiences associated with life-threatening states without presupposing their ontological significance. Such an approach makes it possible to distinguish phenomenological description from questions concerning mechanisms and, further, from questions concerning possible metaphysical implications.

From a cross-cultural perspective, it is important that the interpretation of NDEs may be associated with cultural context. An appropriate question is which elements of the experience display cross-cultural similarities and which are modified by the systems of meaning available within a given culture. For precisely this reason, NDEs may function as a “boundary test” for the paradigm. There is evidence supporting neurobiological models, as well as evidence interpreted by some researchers as indicating the need to extend those models. However, there is no universally accepted theoretical model capable of providing an unambiguous explanation of all aspects of near-death experiences (Parnia, 2025; Suffczyński, 2026). However, cross-cultural psychology demonstrates that beliefs concerning death, the afterlife, and the nature of consciousness are deeply embedded in cultural contexts.

Toward an Expanded Scientific Paradigm

From the perspective of cross-cultural psychology, the possibility of integrating different levels of description is particularly important. Near-death experiences represent an example of a problem that requires precisely such a multilevel perspective. They are simultaneously psychological experiences, biological events, and phenomena interpreted within particular cultural systems. None of these levels appears sufficient on its own. In this sense, the future of consciousness research may depend not only on advances in measurement technologies but also on

the ability to integrate different research traditions. Contemporary cross-cultural psychology, neuroscience, and meditation research demonstrate that such dialogue is possible (Lutz et al., 2008; Różycka-Tran et al., 2025, 2026).

Regardless of how the problem of near-death experiences is ultimately resolved, it already constitutes an important challenge to prevailing conceptions of the human being, consciousness, and the boundaries of scientific knowledge. In this sense, NDEs may represent an important area for the development of the psychology of consciousness—not because they resolve metaphysical questions, but because they reveal the limitations of current models and indicate directions for their further expansion.

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