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# Do out-of-body and near-death experiences point towards the reality of nonlocal consciousness? A critical evaluation

*PF CRAFFERT<sup>1</sup>*

## Abstract

In recent years there was a steady flow of academic studies claiming that the mind or consciousness can function independently from a working brain. Such research is presented with great confidence as a scientific breakthrough and one that will alter received views on both humanity and the meaning of life as well as medical science in general and neuroscience in particular. In this article the three major streams of evidence for the existence of nonlocal consciousness are critically evaluated. Neither the testimonies of thousands of experiencers nor research on cardiac arrest patients or experimental research on veridical perception during out-of-body experiences at this stage provide sufficient evidence for such claims about nonlocal consciousness. Extraordinary claims about paradigm changes in the scientific world should be supported by uncontroversial and high quality evidence, which is currently not available.

**Keywords:** consciousness, nonlocal consciousness, out-of-body experiences, near-death experiences, life after death, veridical perception, clinical death.

**Disciplines:** Anthropology, Psychology, Psychiatry, Consciousness Studies, Religious Studies

## 1. Introduction

The British *Telegraph* of 7 October 2014 carried the following story: *First hint of "life after death" in biggest ever scientific study*. The newsworthy claim of the article was: "Southampton University scientists have found evidence that awareness can continue for at least several minutes after clinical death." Reporting on the same study, the German *Spiegel Online* of 9 October 2014 suggests that awareness continued in cases where there was no longer any brain activity possible. Both reports refer to a recently published study, *AWARE — AWAreness during REsuscitation — A prospective study* led by Sam Parnia, currently professor in pulmonary and critical care medicine at the State University of New York, claiming the reality of nonlocal consciousness during clinical death (2014). This follows on a study of near-death experiences (NDEs) just more than a decade earlier when a group of Dutch

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<sup>1</sup>. Prof. Pieter F Craffert is a Research Professor, College of Human Sciences, P O Box 392, Unisa, Pretoria, South Africa. Email: [craffpf@unisa.ac.za](mailto:craffpf@unisa.ac.za)

scholars led by cardiologist Pim van Lommel (see 2001) made a similar claim. Scientists are asking: is death really the end?

Raymond Moody, who popularised the term *near-death experience* (NDE) some 40 years ago and half-heartedly denied that NDEs provide scientific proof for an afterlife, adds that it does mean that a major step has been taken that puts the idea “on a more secure footing” (Moody [1975] 2001:171). It is noteworthy that in a forward to his book, Elizabeth Kübler-Ross (2001:xxi) writes: “It is research such as Dr. Moody presents in his book that will ... confirm what we have been taught for two thousand years — that there is life after death.” There is little doubt that, if corroborated and scientifically affirmed, this research has far-reaching implications even beyond the claims advanced here.

On the one hand, claims about the reality of nonlocal consciousness, i.e. the existence of consciousness independent of the body and brain, indeed touch upon essential questions of our existence, the meaning of life, and human destiny (see French 2001:2010; Engmann 2014:7). Life after death, an immortal soul and a heavenly realm are all in one way or another implicated in the arguments that NDEs provide evidence for nonlocal consciousness. And as Sam Harris points out, what one believes happens after death “dictates much of what one believes about life” (2004:38).

On the other hand, research on NDEs impacts on medical science in general and neuroscience in particular. Van Lommel, for example, says: “NDE pushes at the limits of medical ideas about the range of human consciousness and the mind-brain relation” (Van Lommel, et al. 2001:2044). In his explanation:

*The inevitable conclusion that consciousness can be experienced independently of brain function might well induce a huge change in the scientific paradigm in western medicine, and could have practical implications in actual medical and ethical problems such as the care for comatose or dying patients, euthanasia, abortion, and the removal of organs for transplantation from somebody in the dying process with a beating heart in a warm body but with a diagnosis of brain death. Such understanding also fundamentally changes one's opinion about death (Van Lommel 2006:148).*

Also Bruce Greyson and colleagues suggest that NDEs call into question the “common assumption in neuroscience ... that consciousness is the product of brain processes or that the mind is merely the subjective concomitant of neurological events” (2009:loc 2995; see also Holden 2009:loc 2668). NDE research, as some suggests, genuinely represents an instance of a paradigm change in many regards (see Parnia 2013:196–8).

In summary, questions about our humanity, as well as fundamental beliefs in the biomedical paradigm in general and the neurosciences in particular are at stake in NDEs research. Profound claims such as these, however, invite critical analysis.

## 2. Clarifying concepts

For the sake of this article the term *out-of-body experiences* (OBEs) refers to the experiences in which a person has the impression that consciousness or the self has been separated from the body (see Craffert 2015:21), while *NDEs* refer to composite experiences that contain, among others, OBEs (also elements like travelling through a tunnel, a life review, encounters with deceased relatives, and the like), but which take place during severe bodily trauma or at the brink of death. A general rule of thumb is that most NDEs contain an OBE as one of its constituting features while most OBEs do not necessarily take place during circumstances of closeness to death. While the term NDE originated to describe experiences in a brush with

death (see Moody [1975] 2001:8), in most studies nowadays it is used as an umbrella term for near-death, fear-death and even experiences without any element of closeness to death (see Van Lommel 2011:20). In fact, many use it synonymously with OBE (see, e.g., Holden 2009:loc 2624).

This study will look at both OBEs and NDEs as providing support for nonlocal consciousness. After all, it is the experience of out-of-bodiness (whether during closeness to death or not) that primarily serves as evidence for the notion of nonlocal consciousness and consequently, for arguments about life after death. *Nonlocal consciousness* is the term used to describe the possibility that the *self*, *mind*, *consciousness* or *soul* can exist independently from the brain and body.

### 3. A scientific breakthrough?

Recently a flood of publications promoted the idea that NDEs confirm that consciousness can exist independently from the body or brain. For example, Mario Beauregard, research professor in Psychology and Radiology and the Neuroscience Research Center, University of Montreal states:

*The scientific NDE studies performed over the past decade indicate that heightened mental functions can be experienced independently of the body at a time when brain activity is greatly impaired or seemingly absent (during cardiac arrest)... These findings strongly challenge the mainstream neuroscientific view that mind and consciousness result solely from brain activity... NDE studies also suggest that after physical death, mind and consciousness may continue in a transcendental level of reality that is normally not accessible to our senses and awareness (2012:181).*

A major voice in these circles is Van Lommel:

*By studying people who have experienced an NDE, we found, to our surprise, that a persistent and unaltered self-identity can be experienced independently from the lifeless body at a moment the brain does not function during cardiac arrest, even with a flatline EEG, and so consciousness or self does not reside in our brain, nor is it limited to our brain, which proves that the self cannot be the product of brain function. Without a body, we still can have conscious experiences (2011:27).*

Jeffrey Long, a radiation oncologist, also advocates this viewpoint: NDEs confirm that “life continues after bodily death” (2010:47). In a recent publication Sam Parnia claims that the viewpoint coming out more and more from NDE research and insights from resuscitation science is that consciousness, the self or the soul, does not come to an end after death (see 2013:217). The study mentioned at the beginning of this article is the most recent in this stream of claims. It is important to pay attention to it because it was co-authored by 31 scholars (including two of the major voices in this field of research, Peter Fenwick and Bruce Greyson). The aim of the study was to investigate the incidence of awareness and a broad range of other cognitive and mental experiences during resuscitation after cardiac arrest. The principal author himself promotes this study as an instance affirming veridical perception; that is, perceptions that were independently corroborated (see Parnia 2014:86). Therefore, it is important to get some perspective on this study before evaluating the general scientific claims.

Data was collected from 15 hospitals in the UK, USA and Austria over a four-year period. A total of 2060 cases were included, of which only 330 patients actually survived to be discharged. Of these, 140 were found eligible for interviews but only 101 could actually be interviewed. Only 55 had memories or awareness of the resuscitation of which only nine had

experiences compatible with NDEs and only two had specific auditory or visual awareness. Only one of them could describe his perceptions during the resuscitation. The non-NDE persons reported themes such as fear, animals and plants, seeing their family and bright lights (see Parnia, et al. 2014:3–4).

What the team calls a “verified case of VA [visual awareness]” (Parnia, et al. 2014:5) consists of the single individual, a 57-year-old patient who described his perception of the resuscitation from the top of the room. “He accurately described people, sounds and activities from his resuscitation,” they claim. He heard the beep sound of an automated external defibrillator, reported that a nurse and a bald man (although he did not see his face and could not see whether the man was bald because he was wearing a “blue hat”), who he later identified as the doctor who attended to him the next day, and described some of the resuscitation activities, like his blood pressure being taken and the doctor putting something down his throat. Since this resuscitation did not take place in a room where one of the more than 1 000 images are displayed on shelves visible only from the ceiling, no accurate visual perception of an image could be corroborated.

The gist of this article is to suggest that visual awareness took place (or consciousness was registered) when there was no brain activity (possible). The reader is led to the conclusion that consciousness existed independently from brain activity based on no concrete data or evidence, but on a number of vague inferences. One is that this patient had no brain activity because “typically” there is no measurable brain function during cardiac arrest and it is assumed that during CPR there “typically” remains insufficient blood flow to meet cerebral metabolic requirements. Without sufficient evidence that this patient had no brain activity, it is suggested that it is unlikely that this patient could normally perceive any of the reported activities. It is unlikely that the patient could have remembered any of the CPR procedures because normally such patients suffer from delirium and are incapable of accurate reports, it is claimed. If the additional assumptions (which unfortunately are not substantiated evidence) of “it was estimated that our patient maintained awareness for a number of minutes into CA [cardiac arrest]” and “the experience likely occurred during CA rather than after recovery from CA or before CA” (Parnia, et al. 2014:5), are accepted, one is left with at least two plausible explanations. One, that there was no brain activity and therefore visual awareness resulted from nonlocal consciousness or, two, that during cardiac arrest this patient actually recorded and remembered what was going on during the CPR (see further below). The second explanation is not even considered by the authors.

While the authors claim that his medical records corroborated his account, no evidence is given of how and in which way they support it. If standard CPR procedures were performed and the patient was aware of some things that were happening to and with his body, it is to be expected that he would report about the kind of things happening during CPR.

This study and the endless stream of claims about nonlocal consciousness (see Trent-von Haesler and Beauregard 2013:199) beg the question about the actual evidence for claims about nonlocal consciousness. Extraordinary claims require extraordinary evidence; “a radical view ... would ideally require radical evidence of high quality” (Braithwaite 2008:1). Thus the question: What is the nature and quality of the evidence for nonlocal consciousness provided over the last 40 years of NDE-research?

#### 4. The case for nonlocal consciousness

The three main lines of argument in support of the existence of consciousness independent of the brain will be evaluated here. One is the testimony of thousands of people who have had NDEs, the second is that many NDEs take place during cardiac arrest when there allegedly is no brain activity, and the third is arguments about veridical perception during out-of-body experiences.

##### 4.1 The abundance of NDE-reports

Near-death experiencers (NDErs) are normally convinced that their experiences as well as what they experienced are genuinely real. In fact, one of the features of such reports is that experiencers consider the NDE as even more real than ordinary experiences and convinced them that death is merely a transition rather than an end. For this reason it is not surprising that many NDErs do not question their experiences, but advocate them as life-altering experiences and proof of life after death. The explanatory hypothesis endorsed by most near-death experiencers is that during the experience “some part of them separated from their physical bodies and experienced an introduction to the afterlife” (Greyson 2000:338). In some instances experiencers are also researchers who not only present their experiences, but reflect on them and defend them within the framework of near-death research. Eben Alexander, the neurosurgeon who wrote a book about his NDE, is a case in point (see Alexander 2012). Advocacy scholarship supports, if not promotes, this type of first-person explanation.

For some scholars the ubiquity of NDE reports and the content of their testimonies provide the first line of argument for the reality of consciousness independent of the brain (see Stevenson and Greyson 1996:204). The aim of the scientific method as practised in such studies is first and foremost to corroborate the truth and content of experiencers' claims. It is clearly explained by Long who manages the largest database of NDEs available today: “By studying thousands of accounts of NDErs, I found the evidence” (Long 2010:48). This is evident from the main pillar of this “scientific” methodology, namely to gather as many “reliable” accounts as possible and the more reports that can be amassed, the stronger the case becomes for the reality of NDEs. And according to the “scientific evidence” provided by the more than 1 300 reports studied, Long concludes that “it is reasonable to accept the existence of an afterlife” (Long 2010:48). In other words, more accounts of NDEs confirm the claims made by experiencers.

Others are more tentative in concluding that evidence for nonlocal consciousness only suggests that consciousness or the “soul” “may survive the death of the body” (Cook, Greyson and Stevenson 1998:401). The reason, as they point out, is that NDEs take place when persons are still alive and therefore it is not conclusive evidence of what may happen when the brain and body are no longer revivable. But the scientific logic is widespread: the large number of people claiming NDEs confirms the reality of what they experienced. In the words of Van Lommel: “more and more experiences are being reported by serious and reliable people who, to their own surprise and confusion, have experienced, independent of their physical body, an enhanced consciousness with a persistent experience of self” (2011:25). For them the conviction of multiple testimonies of nonlocal consciousness supports the conclusion that consciousness can exist independently from the brain. It should be noted that while claiming NDEs, most of these people suffered from noncritical medical conditions and were not close to death (see Parnia 2014:84).

But the fundamental problem with this way of conceptualising the research problem is that it is seen as a case of enough data instead of how to interpret and understand the data. The assumption is that more cases of NDEs can confirm the claims made by NDErs. However, the content of experiences cannot be the evidence for the hypothesis because more cases merely provide more examples in need of interpretation (see Irwin 2002:21). Whether ten or a thousand accounts of NDErs perceiving things during the experience does not matter if what they claim to have perceived cannot be verified and independently corroborated. In the words of Robert Kastenbaum: “Ten thousand reports are no better than ten reports if they are offered simply as further examples of the fact that some people believed they had died and come back to life” (1996:260).

#### 4.2 Nonlocal consciousness during clinical death

The second line of evidence for nonlocal consciousness is a very general one claiming that extraordinary perceptions (such as, being out of one’s own body and seeing it from the outside) take place during phases of clinical death when there is no brain function. Summarising this line of research, Trent-von Haesler and Beauregard suggest that NDErs experience vivid and complex thoughts, and acquire veridical information about objects or events remote from their bodies precisely “while their hearts are stopped and brain activity is seemingly absent” (2013:200). The conclusion is that consciousness is not generated by the brain, and is not confined to the brain and body.

In many instances an even stronger rhetorical claim is made. Parnia, for example, says a NDE “is better renamed an actual-death experience” at least for cardiac arrest patients, “since they are not near death but have actually died” (2013:219). Moody already started this trend when claiming that several doctors told him that they were baffled by the detailed description of many patients regarding resuscitation procedures “even though the events took place while the doctors know the patients involved to be ‘dead’” ([1975] 2001:93). Either way the rhetoric is clear: actually the person or brain is dead; the implication follows: it is not the brain but nonlocal consciousness that perceives during such OBEs. And from the existing literature it is apparent that arguments for nonlocal consciousness strongly depend on research conducted with patients who have had OBEs during cardiac arrest. The reason is that cardiac arrest is the closest model we have to the dying process.

Two arguments (or assumptions) play a role in advancing the idea of nonlocal consciousness during cardiac arrest. One is that during cardiac arrest and the subsequent resuscitation there is no brain function. Secondly, the OBEs actually take place when there is no brain function possible. Sam Parnia and Peter Fenwick, for example, say that extensive animal and human studies during cardiac arrest show that during cardiac arrest cerebral blood flow is severely impaired which leads to a lack of electrophysiological activity in the cortex. Therefore, the question is how can, during a phase when cerebral functions are severely impaired if not absent, such lucid perceptions which include reasoning, attention and memory recalls as NDErs testify about, take place (see 2002:6–8)? This is also the view of the Dutch study: “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 and flat EEG” (Van Lommel, et al. 2001:2044). French cogently summarises the state of this research: “It is clear that the argument that recent findings present a major challenge to modern neuroscience hinges upon the claim that the NDE is actually experienced ‘during a period of clinical death with flat EEG’ as claimed, with the implication that no cortical activity is taking place during this period” (2005:362).

The three crucial issues here are what is meant by clinical death, whether there is any brain function during cardiac arrest, and when the NDE (or OBE) actually takes place.

#### 4.2.1 Death, clinical death and brain death

A great deal of the confusion in this debate has to do with linguistic matters. And it is this confusion that is exploited in order to make extravagant claims about NDEs. Therefore it is important to ask: what is meant by the terms *death*, *clinical death* and *brain death*?

Unfortunately, there is some linguistic confusion over the term *clinical death*. Clinical death, according to Birk Engman “is defined by complete circulatory arrest, and hence a lack of pulse, and breathing arrest, but still reversible by means of reanimation” (2014:48). This happens, for example, after acute myocardial infarction where breathing and blood circulation is terminated. It is widely accepted that if such patients are not resuscitated, they will die (see Van Lommel, et al. 2001:2040; Van Lommel 2011:20). The problem with this definition, Nelson points out, is that even syncope then counts as clinical death (see 2014:112). Therefore he maintains that to a neurologist, clinical death means “your brain is dead ... There’s no coming back from clinical death” (in Paulson, et al. 2014:41). All of this is probably an over-reaction in the context of NDE research where, as seen above, scholars in some NDE circles take NDEs as *death*.

On a clinical and neurophysiological level, there is actually a great deal of agreement about death since most scholars agree that death is a process. Under normal conditions the brain receives 15% of cardiac output and 40–50% of total cerebral blood flow is required to supply enough glucose and oxygen to maintain cellular integrity in the brain, while 50–60% blood flow is needed to maintain electrophysiological activity (see French 2005:362). Circulatory and breathing arrest leads to a decrease in the supply of nutrients and oxygen to the organs. Ganglion cells in the brain can survive eight to ten minutes, after which mental damage takes place; other organs can overcome clinical death that lasts much longer, for example, the heart 30 minutes, the lungs 60 minutes and the liver two hours (see Engmann 2014:49–50; Parnia 2013:20–1). Under special circumstances, such as hypothermia and resuscitation medical care, reanimation can still be successful after much longer periods (see Nelson 2011:loc 1867; Parnia 2013:10–11). After successful reanimation when nutrient and oxygen supply is restored, it takes a certain period of time for the brain to get back “online.” If reanimation fails during clinical death, it passes over to what is called brain or biological death (see Engmann 2014:9). This is important: when brain death occurs, a patient is declared dead.

Although the exact time of irreversible cell damage and brain death in the process of dying is still unknown, there is agreement that beyond a certain threshold neurons begin to die and beyond a certain number of dead neurons, life can no longer be sustained. However, even the death of neurons is not a clear indication of the time of death, but merely refers to a continuum where active life can be either severely impeded (such as in a vegetative state) or be terminated (brain or biological death) (see Nelson 2014:112–113; Parnia 2014:77). In summary, in the process of dying, clinical death is a transitory state of short duration (see Engmann 2014:94) which can either be turned around or end in impeded existence or brain death.

In this process it is not easy to say what “near-death” would mean because it is not a clinical term. When and where in this process is someone *near death*? In view of the fact that scholars more or less agree on the clinical profile of death as a process, it is hard to avoid the conclusion that there is something cynical in the rhetorical ploy to call NDEs *death* or *actual death experiences*. Nowhere in all the literature is a case made that the phase of death where

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life can be turned around by means of CPR or reanimation, should be seen as actual death. Most critical scholars agree that the brain during clinical death and NDEs, “is nowhere near physically dead... It is alive and *conscious*” (Nelson 2011:loc 1856); during clinical death the brain is not dead but merely in “a state of severe dysfunction” (Engmann 2014:62). Even if there is sufficient evidence for exteriorisation of the self during an OBE, it is important to remember that OBEs take place when people are physically alive (see Irwin 2002:21). Thus, near-death is “not a *return from death*” (Nelson 2014:112).

#### 4.2.2 Cardiac arrest, EEG and brain functions

The notion that a NDE is an actual death is supported by often repeated claims in NDE research that NDEs take place when there is ostensibly no brain function or when the EEG is flat. In fact, claims about a flat EEG during cardiac arrest serve as another rhetorical ploy to support the idea that NDEs take place when the brain is not functioning. While it is true that a flat EEG points towards a lack of cortical (not necessarily brain) activity, it is much more complicated.

Even before that point is considered, it is important to note that not a single NDE study contains actual EEG data in support of the general claim about cortical activity (see Braithwaite 2008:3). The reason probably is that no one ever measures the EEG of patients undergoing resuscitation for sudden cardiac arrest (see Woerlee 2008) and it is obviously not done with any other unannounced OBE. But even if there were data, the accuracy of EEG measurement should be considered. How many electrodes should be used for an accurate measure and for how long should an EEG be recorded (see Chrislip 2008:14–15; Engmann 2014:62)?

The claim that a flat EEG means no brain activity in itself is problematic because non-measurable EEG activity does not necessarily mean complete loss of brain activity. Even in the case of brain death, the loss of EEG activity alone is not sufficient to declare someone brain dead. Another question is whether during resuscitation after cardiac arrest, is there enough blood flow to sustain consciousness? As indicated above, if a functional heartbeat is not restored within a few minutes, increasing degrees of brain damage will set in. But the purpose of cardiac massage is precisely to restore heartbeat and research shows that manual or external cardiac massage provide sufficient blood flow for a significant number of patients (more than 40%) to maintain consciousness (see Woerlee 2013:298–301). Not only does a host of studies show that efficient cardiac massage can restore cardiac output, blood pressure, brain oxygenation and brain nerve activity as detected by an EEG, but also that some patients can regain consciousness (see Woerlee 2013:302–305).

But it is becoming apparent that brain activity during cardiac arrest is even more complex. Two recent studies independently suggest that what is called “end-of-life electrical surges” might explain the vivid brain functions experienced during NDEs. In one study EEG activity was measured by means of sophisticated equipment in critically ill patients where life support was withdrawn. At a time where there was no blood pressure and the brain was reaching a critical level of hypoxia, they could measure a cascade of electrical activity (see Chawla, et al. 2009). In another study measuring both EEG and deep brain activity, a group of scholars studied brain activity in healthy rats during wakefulness, anesthesia and cardiac arrest. In their own words:

*These data demonstrate that cardiac arrest stimulates a transient and global surge of synchronized gamma oscillations, which display high levels of interregional coherence and feedback connectivity as well as cross-frequency coupling with both theta and alpha waves. Each of these properties of gamma oscillations indicates a highly aroused brain, and collectively, the data suggest that the mammalian brain has the*



*potential for high levels of internal information processing during clinical death. The neural correlates of conscious brain activity identified in this investigation strongly parallel characteristics of human conscious information processing (Borjigin, et al. 2013:4–5).*

Both studies suggest that vivid and lucid conscious experiences are indeed possible during cardiac arrest and clinical death. Viewed from this perspective, much of the NDE data are evidence for some remarkable brain functions precisely during the process of dying.

#### 4.2.3 When does a NDE take place?

Even if it is granted that EEG measurement indicates no activity in the cerebral cortex (what EEG measures), the question remains: when does an NDE take place? The short answer is, nobody really knows because there is no evidence that the two events occur at the same time (see French 2001:2010; Braithwaite 2008:7). Was it during the flat EEG or when they entered or recovered from the state of clinical death? The common but erroneous assumption in some NDE circles that certain cognitive activities are impossible to perform when the brain is supposedly dead, was turned on its head by Michael Marsh when he showed that many of the NDE features makes sense as the result of rapidly and vigorously reawakening brains (see Marsh 2010:88–91). One part of his argument which takes seriously the fact that most OBEs are componential, is to show that the combination of perception and misperception of bodily sensation together with the perceptions created by the recovering brain reported by NDErs “could not occur if that consciousness resided outwith the body, and more importantly, outside its disordered brain” (Marsh 2010:87). The second part is to show that often reported features of NDEs are possible once it is recognised that “such coherent cognitive functioning does occur (and could *only* occur) during that terminal revitalizing process” (Marsh 2010:91).

Add to this the question of how long a NDE lasts? The Swiss geologist Albert Heim had a NDE while falling on a ski trip. His fall lasted not more than 10 seconds during which he experienced a life-review and other elements, which he claims will take a very long time to describe. This is confirmed by the few survivors jumping from the Golden Gate Bridge who experienced NDEs — a fall of about four seconds (see Marsh 2010:74; Woerlee 2013:306), as well as the syncope induced in healthy subjects under experimental conditions which lasted no longer than 22 seconds. During this short period 83% of the subjects had profound experiences, including OBEs, entering other worlds, meeting other beings, life reviews and visual perceptions (see Lempert, Bauer and Schmidt 1994). It should be obvious that there is not a correlation between the length of the experience and the length of the experienced content, as can be seen by the example of life reviews which are truncated into short time periods of experience (see Marsh 2010:xix; Swaab 2014:310). What in narrative time is experienced as hours, can in experiential time take place in a few seconds and to date nobody knows when that moment occurs.

In summary, it is not necessarily the case that OBEs take place when there is no brain function or function possible, because nobody really knows when OBEs and the other elements of the NDEs actually take place. Secondly during cardiac arrest patients are not actually (brain) dead and it is not the case that no brain function and activity is possible. It is merely a rhetorical ploy, if not outright misleading, to claim that NDErs were actually dead. Exaggerated and unfounded arguments are offered in support of claims that require exceptional evidence and that evidence is actually not forthcoming. On the other hand, the body of data on NDEs during cardiac arrest is evidence of remarkable features taking place in the human brain during the process of death.

### 4.3 Veridical perception during OBEs

Encounters with ancestors or the perception of a tunnel or lights during a NDE remain subjective experiences, while rhetorically and substantially by far the strongest claims for nonlocal consciousness come from veridical perceptions during OBEs. Beauregard quite correctly points out that OBEs are quite important from a scientific point of view because it is the only feature of the NDE that can be independently corroborated (see 2012:162).

There are two potential sources of empirical data on veridical perception that need to be taken into account here: anecdotes or reports by NDErs and field studies or designed studies testing perceptual ability during OBEs. The latter refers to studies that are set up to determine whether persons experiencing out-of-bodiness actually produce verifiable perceptions. Just one verified account, as Laws and Perry (2010:145) point out, would already be a breakthrough. Thus, what is the evidence showing at this stage?

#### 4.3.1 Claims about veridical perceptions

When looking at scholarly publications one can easily come to the conclusion that veridical perception during NDEs is firmly established. Sometimes it is formulated rather tentatively: “Some patients do appear to have obtained information which they could not have obtained during unconsciousness” (Parnia, et al. 2001:154). Most often claims are much stronger. In several publications Greyson claims that there are “numerous examples” of veridical out-of-body perceptions (see 2000:341). In fact, he says that “near-death-related OBEs include accurate perceptions from an extracorporeal visual perspective in more than 90% of documented cases” (Greyson 2011:469; and see Greyson 2013:477). Similar claims are repeated in many publications (see e.g., Van Lommel 2004; Gibbs 2010:309; Fracasso and Friedman 2011:48) — most of which rely on a single publication:

*Sometimes patients even reported that, while out of the body, they became aware of events occurring at a distance beyond the reach of their ordinary senses. In a recent review of more than 90 reports of potentially verifiable out-of-body perceptions during NDEs, Holden (2009) found that a large amount of them had been subsequently corroborated by an independent informant (Agrillo 2011:7).*

Relying on the same study of Janice Holden, David Rousseau claims that “90% of NDE reports of perceptual experiences during cardiac arrest or prolonged respiratory arrest contain no errors” and “35% of these reports have been independently corroborated” (2012:54). Based on this study, Van Lommel makes the following claim: “In a recent review of 93 corroborated reports of potentially verifiable out-of-body perceptions during an NDE, about 90% were found to be completely accurate, 8% contained some minor error, and only 2% were completely erroneous” (2011:22–23). If true, this evidence cannot lightly be dismissed. For that reason it is important to evaluate Holden’s report.

In probably the most often quoted study in this regard, Holden investigated all the data about veridical perception during the last century. She found 107 anecdotal reported cases of NDErs in 39 different publications that claim veridical perceptions ranging from detail about the rescue or resuscitation to other events during the NDEs. Ninety three of these contain reports about material aspects (as opposed to accounts about trans-material aspects, such as deceased relatives). In a publication with Greyson and Van Lommel, referring to this study, she does not hesitate to state: “Among 107 published cases of such perceptions during NDEs, approximately 91% were completely accurate” (Greyson, Holden and Van Lommel 2012:445). That is despite the fact that in the original study, she says that of the total of 107 reports 19% contained errors and only “38 percent ... involved complete accuracy of perception” (Holden 2009:loc 2778). But how true is this claim of “accurate perception”?

In her evaluation, the objectively corroborated perceptions vary “from somewhat weak to extremely strong” (Holden 2009:loc 2774). She does not give any indication of what is meant by “extremely strong” or how many accounts that are presented as accurate actually depend on “weak” evidence. It is also not clear how many fall into each category. Furthermore, how can claims about accurate (not to say, *completely accurate*) perceptions be based on somewhat weak evidence?

A number of features should put her claim of *complete accuracy of perception* into perspective. Most cases she says (she fails to tell us how many), did not involve cardiac arrest which means it is difficult to rule out healthy working brains during the NDE. Secondly, only 18 of the 107 interviews were conducted within two days after the experience — some were many years later. Thirdly, none of the studies cited in her overview used “empirical ‘gold standard’ techniques” (Mobbs 2012:446). Fourth, contrary to the claims above, Holden makes it perfectly clear that 51 of these “accurate” accounts were corroborated only by the experiencers themselves. Finally, she approvingly cites Ring and Valarino who say that “although no single instance may be conclusive in itself, the cumulative weight of these narratives is sufficient [emphasis original]”. Despite these problems, she claims the “sheer volume” of anecdotes collected over the past 150 years suggests veridical perception “is real” (2009:loc 2788). Does this not say it all?

#### 4.3.2 Strong evidence for out-of-body perceptions?

In order to be fair in one’s evaluation, it is necessary to look at the instances that are most often cited as constituting the “strong evidence” for out-of-body perception.

Let me start with the case of Pam Reynolds, which is recognised as containing to date the “most detailed and objectively corroborated content” (Holden 2009:loc 2743). Reynolds suffered a life-threatening aneurysm close to the brain stem and was operated on in a complex procedure known as hypothermic cardiac arrest during which her body temperature was lowered to 16 degrees, heart beat and breathing is flattened and the blood drained from the head in order to remove the aneurysm (Greyson 2000:339–40; French 2005:363; Holden 2009:loc 2712–2743). She allegedly described the 20 medical personnel involved in her operation, the bone saw as the saw thing that looked like an electric toothbrush and it had a dent in it, and later claimed to remember that she heard a female voice (that of the assistant surgeon) which said: “We have a problem. Her arteries are too small.” In some NDE circles this is the prime example of corroborated veridical perception (see Greyson 2000:339–340; Beauregard 2012:157) and often cited as providing proof that veridical perception takes place during a period of a flat EEG (see e.g., Van Lommel, et al. 2001:2043).

But the evidence is far from strong. Michael Sabom who documented this case eight years after the event makes it clear in his time line that she was awake when taken into theatre and was under general anaesthesia when she heard and saw certain things (see Kelly, Greyson and Stevenson 1999–2000:517; Holden 2009). In what Valerie Laws and Elaine Perry (Laws and Perry 2010:149) calls a perfect illustration of the Chinese Whispers effect in action, numerous publications claim that it took place during her NDE while her EEG was flat. But as they point out, there is no evidence that this is the case. In fact, Sabom’s own account reveals that her NDE took place a full two hours and five minutes before her body was cooled down during the operation (see Augustine 2008:22). Marsh, who made a thorough analysis of the verbal account of her report, points out the inaccurate and vague aspects of the account — an account of a mere 325 words for a period of events stretching over a period of more than two hours (see 2010:19–23). Since she was having elective surgery, much of the

information that is ascribed to her OBE could have been available even before the operation (such as the shaving of her head and the kind of saw that was used). Based on this fact, this account would not pass the first step of a thorough scientific investigation (see Laws and Perry 2010:150). Even if it is accepted that she did not know anything about the saw that was used during the operation, Keith Augustine remarks that it is telling that the one visual observation that she could have obtained during the OBE, was the very detail that was *not* accurate, namely, the shape of the saw used to open her skull (2008:29). If the prime example of veridical perception raises so many questions, how can it be called strong evidence?

Another example in Holden's list was first promoted by the Dutch group of scholars and remains one of the frequently cited examples of veridical perception during an OBE. In 2001 Van Lommel reports that, during the pilot phase of their study, a coronary-care unit nurse reported an incident where it was discovered that a comatose patient who was brought into the unit had dentures in his mouth when they wanted to intubate him. The nurse removed the dentures and placed them onto the "crash car". A week later, on seeing the nurse for the first time in the cardiac ward, the patient remarked that the nurse would know where his dentures are. He also remembered what had happened to him during the resuscitation in the small room where he was kept (see Van Lommel, et al. 2001:2041; Smit 2008).

They failed to report that this incident actually took place 22 years earlier in 1979, that the patient died soon after the event, that it was reported in a Dutch magazine in 1991 by a nurse who had learned about it second-hand, and that the cardiology nurse himself revealed his side in an interview only in 1994 and in detail in 2008 (29 years after the event). In a transcript of the latter interview the nurse is asked about his peculiar husky voice that people remark on (see Woerlee 2010). The astonishing fact about this case is that the patient who recovered in the intensive care unit after the incident did not know where his dentures were, but only when the nurse from the cardiac unit came into the ward **a week later**, did the patient remark that this nurse knows where his dentures are (see Smit 2008:54–55). He probably recognised the peculiar voice of the person who resuscitated him and remembered what happened to his dentures. Hardly strong evidence for veridical perception.

The third example, which Kenneth Ring and Madelaine Lawrence present as "supported by independent corroboration of witnesses" (1993:225), is that reported by a social worker, Kimberly Clark, who visited a patient, Maria, who was admitted to the Harborview Hospital in Seattle after a heart attack. Maria told her that during an OBE she was outside the hospital and saw a tennis shoe on the ledge on the outside of the building (see Long 2010:79; Beauregard 2012:171). Clark's version that the shoe could not be seen from inside or outside the hospital did not pass the test of examiners simulating the case (see Augustine 2008:18ff; Wiseman 2011:67-70). Perhaps it is significant that even NDE sympathisers dismiss this story as hearsay rather than fact (see Marsh 2010:63).

A final example is that of Al Sullivan, a 56-year-old taxi driver who was rushed to Hartford Hospital in Connecticut with an irregular heartbeat when one of his arteries became obstructed during the examination. He had an emergency bypass operation and following the operation remarked about the cardiothoracic surgeon's flapping of his elbows as if trying to fly. When interviewed nine years later the surgeon could not confirm that he flapped his elbows during that operation, but admitted it to be a regular habit of his when scrubbing in (see Cook, Greyson and Stevenson 1998:399ff). Critics are not convinced about the corroboration of this account (see Augustine 2008:118). It is rather amazing that the time line of this account does not bother believers. In his own account, Sullivan claimed that

during the operation he had an OBE, but if the surgeon performing the operation flapped his elbows before scrubbing in so as not to touch the operating field with ungloved hands, this must have taken place before the OBE. Logically, what Sullivan “saw” during his OBE must have taken place before his OBE and thus been produced by memory. The investigators realised there were inconsistencies in his report, but think that he later just “confused the order of events” (Cook, Greyson and Stevenson 1998:400). Hardly what one would consider strong evidence.

One searches in vain for “strong evidence” in NDE literature. In addition to these examples that are cited over and over in some circles, only two more actual cases are presented in a recent publication by Parnia (see 2014:86). One is his own AWARE project mentioned at the beginning of this article, where a single instance out of more than 2 000 patients is presented as proof of veridical perception during an OBE. From the little evidence that is given, it can, for example, be deduced that the patient did not actually see the doctors or nurse, but a day later identified the caring physician with the mental image (“looking down at me, the nurse, and another man who had a bald head ... I couldn’t see his face but I could see the back of his body. He was quite a chunky fella ... He had blue scrubs on, and he had a blue hat, but I could tell he didn’t have any hair, because of where the hat was ... I know who (the man with the blue hat was) ... I (didn’t) know his full name, but ... he was the man that ... (I saw) the next day ... I saw this man [come to visit me] and I knew who I had seen the day before”; Parnia, et al. 2014:5). From his own account he identified the doctor who attended to him the day after the operation, as the one he saw during the NDE. Granted, it was no hallucination; the interesting question begging to be answered from this data is how much and what kind of neural activities remain during some cases of cardiac arrest. But this option is not considered.

The second example mentioned by Parnia is a letter to the editor of a journal in which a group of scholars report that during deep hypothermic cardiocirculatory arrest a patient “apparently ‘saw’ a nurse passing surgical instruments to the cardiothoracic surgeon” and perceived anesthesia and echography machines that were located behind her head (Beauregard, et al. 2012:e19). This is the evidence! Can it really serve as evidence for such a profound claim of nonlocal consciousness?

While the strong cases are at best problematic, if not dismissible, the most remarkable feature of the strong evidence for nonlocal consciousness (the bone saw, the dentures, the tennis shoe and the flapping elbows) is the generality, if not triviality of these examples. One would expect that with so many instances of reported NDEs or OBEs, there would be some remarkable and uncontroversial pieces of evidence of veridical perception where the sense organs and brain are not involved. Unfortunately, that is not the case.

#### 4.3.3 Field studies on OBE perceptions

Besides anecdotal accounts of OBE perceptions, field studies of two different kinds were conducted in order to test such perceptions. On the one hand, experimental tests with subjects who can voluntarily enter OBEs aim at the identification of objects or places during the OBE (see Alvarado 1982). A recent example includes the German philosopher, Thomas Metzinger, who unsuccessfully by means of self-experimenting tried to obtain a single verifiable observation (see 2009:84). The best known are the studies conducted by Charles Tart over a period of more than a decade (see 1998). He tested more than a dozen subjects who could enter OBEs under hypnosis or during sleep experiences on six occasions. Some of his subjects were tested more than ten times and others experienced out-of-bodiness on at

*Td* 11(1), July 2015, pp. 1-20.

least three occasions. During all these experiments only one subject correctly identified a five-digit number, 25132, during an OBE. It should be noted that she spent a night alone in the sleep laboratory where the number was placed. Years later he laconically remarked that one would expect the scientific community to jump at such results in order to refine them (see Tart 1996:324). While the odds of guessing the digits correctly by chance is indeed a hundred thousand to one, the fact that he had to investigate the laboratory the next morning in order to exclude the possibility that she could have read the numbers in some physical way, says everything for the experimental design. Could scholars be excused for not accepting the evidence?

On the other hand, many prospective studies in hospitals with cardiac wards where it is to be expected that people might experience NDEs have been conducted. In the study mentioned at the beginning of this article, between 50 and 100 shelves with images visible only from above the shelves were installed in acute medical wards in each of the 15 hospitals. More than 1 000 target images were displayed in these hospitals but over a period of four years not a single identification took place (see Parnia, et al. 2014:6). The same zero result characterises all other known studies with hidden targets (see Trent-von Haesler and Beauregard 2013:199). The remark by Ring a NDE sympathiser says it all: “but isn’t it true that in all this time, there hasn’t been a single case of a veridical perception reported by an NDEr under controlled conditions? I mean, thirty years later, it’s still a null case” (in Holden 2009:loc 2970). The problem with these studies, as Blackmore pointed out more than a decade ago, is that there “are many claims from case studies that people can really see at a distance during OBEs but the experimental evidence does not substantiate them” (2005:191).

## **5. OBEs and false negatives**

When making extraordinary claims, as found in some NDE circles, that the very fabric of science, the foundation of neuroscience and the basic view of humanity are at stake in the results of NDE research, one would expect that all the loose ends are tied up. While the present article primarily looks at the nature and quality of the evidence provided for the case of nonlocal consciousness, a number of features that form part of the case also need to be highlighted.

The first feature is that the data on out-of-body perception do not only contain positive claims, but also numerous accounts of false or inaccurate perceptions. It has already been mentioned that less than 50% of the reports verified by Holden contained accurate perceptions (while those dubbed “strong” also turned out to be uncorroborated). What should one, for example, make of an OBE where the patient gives the physician a rave review for the skill with which that doctor had orchestrated the resuscitating group but it turned out the physician team leader was nine hospital floors away during the experience (see Schnaper and Panitz 1990:102)? Many more examples of what Dietrich calls “false-alarm rates ... details that do not match” (2007:272) can be given (see Gabbard and Twemlow 1991:43; Augustine 2008:4).

False negatives include not only mistaken facts and features about earthly venues visited, but also the numerous extraordinary places, creatures and features encountered in transcendental realms. Sympathisers, however, are quick to admit that not all of these can be taken literally (see Gibbs 2010:332). The large number of false negatives — claims made based on OBEs — are part of the data in need of explanation. An adequate theory of OBEs and out-of-body

perception has to account for both the positive and the negative events — something the proponents of the theory of nonlocal consciousness do not even address.

Secondly, while much more can be said about the theory and practice of science as displayed in NDE research, one feature can be highlighted here. Mention has already been made of the practice that even where no single report proves veracity, the cumulative weight of many reports does. In an attempt to show that anecdotes can be used to confirm the veracity of out-of-body perceptions, it is suggested that the convergence of three features in such testimonies provide cumulative evidence. The three features are normal or enhanced mentation when the physical body is ostensibly unconscious, seeing the physical body from a different position in space, and perceiving events beyond the normal range of the physical senses. Seeing one's own body as in autoscapy or as in many other OBEs is in itself not evidence that anything was outside the body but merely that there was an experience of being out of one's body i.e. it is data, not evidence. Perceiving events beyond the range of the physical body is not evidence of nonlocal consciousness unless independently corroborated. While admitting that individually they are open to alternative explanations, together "they provide convergent evidence" suggesting consciousness can function independently from the brain, advocates maintain (Cook, Greyson and Stevenson 1998:401; Kelly, Greyson and Stevenson 1999–2000:514; Kelly 2001:231). Independent corroboration of perceived events is unfortunately not a criterion here. But more important, three instances of unconvincing evidence cannot together be more powerful than their original force; three tests of non-pregnancy do not constitute one instance of being pregnant.

Thirdly, it is remarkable that most of the evidence for nonlocal consciousness is associated with NDEs and OBEs. That is, with experiences which occur in most instances under conditions where the brain is under (perceived) pressure or threat. Why, if consciousness can exist independently from the brain, do actual departures mostly take place when the brain is under severe pressure? Given the fact that billions of people supposedly possess consciousness that can potentially exist independently from the body, is it not surprising that no accounts exist of consciousness floating around. If consciousness can exist independently from a brain, why does my and your consciousness not travel to distant places on a regular basis?

Finally, a logical problem for the nonlocal consciousness position is that a brain that apparently is unable to record any meaningful perceptions, is claimed to remember the paranormal content of the "soul's" or "consciousness" perceptions during the experience. In short, consciousness which took all the perceptual apparatus along when leaving the body, is capable of downloading its content back onto the human brain for memory and recall purposes when re-entering the body. It is less of a leap of faith to agree with Braithwaite when he argues:

*Once it is realised that normal perception itself can be viewed, to some degree, as a stable and successful hallucination, it is hardly a leap to view NDEs as an extension of this natural process. The NDE then is merely a greater fiction that serves a temporary purpose for consciousness in that, for a short while, it represents reality in the absence of the more usual and stable reality provided by the senses (2008:6).*

## **6. Concluding remarks**

Adequate evidence for the reality of nonlocal consciousness will indeed revolutionise the way we think about human beings in general, and about medical and neurosciences in particular. It is also likely that some hard-nosed scientists will resist such a paradigm change, once its implications for current views become visible. It is, however, in the nature of the scientific

enterprise to question and correct itself and given sufficient and adequate evidence, no real scientist will or can resist genuine changes. In fact, most scholars will give an arm and a leg (and receive a Nobel Prize) if it can be shown incontrovertibly that consciousness can be identified independently from a brain. Therefore, it is unfortunate to create the impression that the main reason for resistance to the idea of nonlocal consciousness is merely ideological. In view of the above discussion a number of remarks can be made about the state of the question.

The first remark is that given the current state of the evidence in the three lines of argument, there is no reason to believe that consciousness can exist independently from a living brain. It is likely that the existing number of testimonies of people experiencing out-of-bodiness will grow and increase, but more accounts are not evidence for what is experienced unless adequately proved. The same applies to the increase in patients suffering from serious illness or cardiac arrest who have NDEs. Arguments cannot be based on assumptions and unfounded notions about what happens during the process of dying. As for the evidence of veridical perception, the score has not changed over the past four decades. Indeed, a single verified account (not even of spectacular content) will be a breakthrough.

The second remark is that extraordinary scientific claims require from all involved to increase the level of scholarship and to raise the bar for accepting scientific claims. It is embarrassing when scholars magnify results by repeating the same unfounded set of evidence. The problem is that when subjected to critical examination, there is no adequate evidence of independently corroborated cases of veridical perception by people who had no level of brain function. Unless that changes it will not advance this case to republish the same “evidence” over and over.

Finally, it is not necessary to blame the journalists for the sensationalist claims made in the media about scientific proof of nonlocal consciousness and life after death. A great number of researchers themselves make similar claims and continue to suggest that an abundance of evidence in support of it is actually available. It might be the case but to date evidence that can withstand critical scrutiny has not been produced.

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