

A Prospectively Studied Near-Death Experience with Corroborated Out-of-Body Perceptions and Unexplained Healing

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ABSTRACT: There are reports of veridical out-of-body experiences (OBEs) and healing occurring during near-death experiences (NDEs). We report a case in which there was strong evidence for both healing and a veridical OBE. The patient's experience was thought to have occurred while he was unconscious in an intensive therapy unit (ITU). The patient's account of an OBE contained many veridical elements that were corroborated by the medical team attending his medical emergency. He had suffered from a claw hand and hemiplegic gait since birth. After the experience he was able to open his hand and his gait showed a marked improvement.

KEY WORDS: near-death experience; out-of-body experience; prospective study; healing.

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A number of studies have found that some patients who report near-death experience (NDEs) during cardiac arrest experience out-of-body phenomena (Greyson, 2003; Lawrence, 1995, 1997; Sabom 1982, 1998; Schwaninger, Eisenberg, Schechtman, and Weiss, 2002; van Lommel, van Wees, Meyers, and Elfferich, 2001). Classically, in the early part of the experience the patient reports leaving his or her body and looking at it from a vantage point near the ceiling, looking back and down at the resuscitation process. A few studies have investigated the possibility that perceptions during the out-of-body experience (OBE) are truly veridical, by correlating the events that occurred during resuscitation when the patient was unconscious with the patient's report (Sabom 1982, 1998; van Lommel, van Wees, Meyers, and Elfferich, 2001). Criticism of this method usually centers around the observation that many patients will have knowledge of resuscitative procedures and thus be able to describe the resuscitation process in some detail (Blackmore, 1993).

There are also accounts of patients who are healed during their near-death experience (Fenwick and Fenwick, 1995; Grey, 1985; Morse and Perry, 1992; Ring and Valarino, 1998; Roud, 1990). Many of these accounts have been poorly documented and come from retrospective studies, which makes them difficult to evaluate. Prospective studies are therefore important for testing both the veridical nature of OBEs and the changes that occur during healing.

Method

The senior author (P.S.) conducted a five-year prospective study of NDEs at the Intensive Therapy Unit (ITU) at Morriston Hospital in Swansea, South Wales. She attempted to verify the out-of-body component of the NDE by placing hidden symbols on top of each patient's cardiac monitor, attached to the wall beside the bed and above head height. The symbols and pictures were mounted on brightly colored paper to attract attention, and were concealed behind ridges on the monitors to ensure that the only way of viewing them was from above. She also recorded arterial blood sample results taken during the period of unconsciousness when the NDE was assumed to have occurred and any drugs administered. This was to explore the suggestions that NDEs are due to anoxia, hypoxia, hypercarbia, or drug administration. The data collection for the first year of the study included the total sample of patients who survived their admission to

the intensive therapy unit (ITU). The data collection for the following four years concentrated on survivors of cardiac arrest and those who spontaneously reported NDEs.

Results and Case Report

The general results of this five-year prospective study of NDEs have been reported elsewhere (Sartori, 2004, 2006). We report here a detailed case report of one of the most interesting cases elicited during the study. The senior author was the patient's nurse at the time his NDE occurred, and the patient viewed her actions and those of the doctor and physiotherapist as if from an out-of-body perspective, above where his body lay in the bed. His experience also incorporated many classic elements of NDEs, including an inexplicable "healing" of a congenital abnormality. The score on the NDE Scale (Greyson 1983) was 20 out of a possible 32. The patient gave an extremely accurate account of the events occurring during the OBE, and the events reported happened at a time when he was deeply unconscious with his eyes closed. These events have been verified by the nurse and physiotherapist who were present, and they were also documented in the patient's medical notes by the consultant who reviewed him at the time of his experience. However, that patient did not recall viewing the hidden symbol.

Case Report

The patient was a 60-year-old Caucasian man recovering from emergency surgery for bowel cancer, following which he was very sick and developed sepsis and multi-organ failure. After five days he no longer required inotropic drugs to maintain his blood pressure, his kidneys regained normal function, and renal therapy was discontinued. Although he was still dependent on the ventilator to assist his breathing, he was making a good recovery, so it was planned that he would sit in a chair to help regain muscle tone. The nurse, physiotherapist, and sister in charge reassured the patient that it would be in his best interest to get out of bed. Within approximately five minutes of sitting in the chair, the nurse noted that the patient's respiratory rate had increased markedly and his oxygen blood saturation levels had dropped to 70 to 86 percent, from its previous

normal level of 96 percent and above. The senior author (P.S.) then manually ventilated the patient with 100 percent oxygen provided by means of an Ambu bag, and the drop in oxygen level was rectified. Although his oxygenation remained stable above 94 percent, the patient's blood pressure then dropped to 85/50 millimeters of mercury, his skin became very clammy, and his condition deteriorated rapidly. There was a brief episode of supraventricular tachycardia that reverted spontaneously without any medication. Extra staff were called and the patient was immediately put back to bed for fear of an ensuing cardiac arrest. By the time he was put into bed he was deeply unconscious, his eyes were closed, and he was not responding to verbal command or deep painful stimuli.

A junior doctor briefly reviewed the patient and prescribed some fluid, then returned to attend another patient. The patient's condition continued to deteriorate, so the consultant anesthetist who had just arrived on the unit was called, and he performed a thorough examination of the patient. Extra fluids were prescribed and administered to improve his blood pressure. In the meantime, the junior doctor returned. The consultant inquired if the patient's pupils had been checked for response, and promptly shone a light in each eye. He remarked that they were both reacting, but that the right pupil was bigger than the left. The patient's condition stabilized and the consultant returned to his office.

During this time, the physiotherapist was concerned that she was to blame for the episode, having persuaded the patient to sit in the chair. She stood outside the bedside screens, nervously and intermittently poking her head around to check on the patient. Once he was stable, it was noticed that he had drooled from his mouth, and the nurse cleaned it, first using a long suction catheter and then a pink oral sponge soaked with water. After approximately 30 minutes, the patient began to flicker his eyelids and move his limbs, although he was still unable to respond to verbal command. He regained full consciousness approximately three hours after the event.

Once fully conscious, the medical team rounding on the ward approached his bedside and he excitedly tried to communicate something to the doctors. He was unable to speak, as he was still connected to the ventilator. The physiotherapist provided him with a letter board, on which he spelled out: "I died and I watched it all from above." This was witnessed by the doctors and nurses who were present on the ward rounds.

The senior author then explained her research in detail to the patient and invited him to participate, and he gave written consent. Once he was no longer dependent on the ventilator and had regained his voice, the senior author interviewed him in depth. This is what the patient reported, taken from excerpts of the first interview and two follow-up interviews:

They wanted me to get out of bed, with all my tubes in me and sit in the chair. They insisted, especially one sister. I didn't want to because I felt so weak; then eventually I got out. All I can remember is looking up in the air and I was floating in a bright pink room. I couldn't see anything; I was just going up and there was no pain at all. I looked up the second time and I could see my father and my mother-in-law standing alongside a gentleman with long, black hair, which needed to be combed. I saw my father – *definitely* – and I saw this chap. I don't know who he was, maybe Jesus, but this chap had long, black, scruffy hair that needed combing. The only thing nice about him was his eyes were drawing you to him; the eyes were piercing; it was his eyes. When I went to look at my father, it was drawing with his eyes as well, as if I could see them both [at] the same time. And I had no pain at all. There was talking between me and my father; not words but communicating other ways – don't ask me what, but we were actually talking. I was talking to my father ... not through words through my mouth, but through my mind.

It seemed to be four to five *seconds*! It was unusual; I went up. ... It was so painless; there was no pain. ... I was so happy. ... I was enjoying myself. But looking back, I could see other patients as well below me. That's what I couldn't figure out: I could see everybody. I was happy, no pain at all, until I felt somebody going to my eye. I looked back and I could see my bed, my body in the bed. I could see everything that was happening on the floor. I saw doctors when I was up there; I was looking down and could see the doctors and even the sister, what she was actually doing in the ward. It was marvelous; I could see nurses around me and the doctors. I was still going up in the air and I could feel somebody going like this to my eye. [He raised his finger up to his eye.] I eventually looked back and I could see one of the doctors pulling my eye, what for I didn't know. One doctor was saying: "There's life in the eye."

I could see everybody panicking around me. The blonde lady therapist boss, she was panicking; she looked nervous because she was the one who got me out in the chair. She hid behind the curtains, but kept poking her head around to check on me. I could also see Penny, who was a nurse. She was drawing something out of my mouth, which looked to me like a long, pink lollipop, like a long, pink thing on a stick – I didn't even know what that was. I was still going up, and eventually the gentleman said to my father and my mother-in-law, "He's got to go back; he's not ready yet." I was peaceful, no pain, still looking up, and I felt this ... could hear this chap telling my

father, "Sorry, he isn't ready yet; he's got to go back." I looked up and Mam [his mother-in-law] said a few words and Dad. Eventually, I felt myself coming slowly back into my body. I went in my body on the bed and I was in terrible pain; the pain was worse then than it had ever been before. All these cables were in me, as they were before I went up. I couldn't speak because I had tubes in my throat and my nose. Then [the physiotherapist] came to speak to me and it was frustration really, because they were all asking me what happened, how I was feeling. Um ... anything wrong ... I couldn't speak; it was more frustrating when you can't speak. The physiotherapist wanted to know what happened. I couldn't speak, so she got a book with words and sayings on it. Eventually she came to a page I recognized and I pointed to that and said, "I was dead." When [the physiotherapist] asked me, I said I was dead, and I *was* dead, actually dead – I can tell you!

Penny: On the monitor next to your bed was something hidden on top. Could you see what it was?

No, I'll be honest with you, Pen, I didn't look. I didn't twist my head back that way; I was just looking at my side. I could see you and the doctor and two to three others around me. Pen, if that's death, it's wonderful, there's no pain at all.

Penny: Do you recall hearing anything while in this state?

Only the words that my father spoke, and the gentleman saying, "He isn't ready yet." Going back ... I heard voices down below but couldn't make out what they were saying. Only thing ... something about my eye, life there. ... I don't know what he meant by that.

Penny: I remember that. It was the consultant actually, and he looked in your eye and he shone a torch and he said, "Yes they are reacting, but unequal."

Yes, something like that, and then to my father, "He isn't ready yet; he's got to go back." Eventually ... I didn't want to go back; I was happy. But I came back into my body, and then all of a sudden it clicked that I must have been dead, something like that. And the first thing that came into my mind was [his wife]. Who was going to look after [his wife], because [his wife] depends on me?

Why I saw my mother-in-law, I haven't got a clue. I want to ask people – I seen my father and mother-in-law; why couldn't my mother have been there? Know what I mean? I didn't know my mother-in-law [she died a year before he met his wife]; I haven't met my mother-in-law before.

Penny: How did you know that it was your mother-in-law?

Photographs. I've got photographs ... and my wife has, so I knew them all. I knew my mother-in-law died from cancer; we weren't married then.

Penny: So you had met her before then?

No. ... That's what I couldn't understand. Why was *she* there with my father?

Penny: So she mentioned your wife, what did she say?

That's all, that's all.

Penny: Just said her name is it?

[The patient noncommittally said, "something like that." He was very nonspecific about this and he hadn't previously mentioned his mother-in-law. When asked about this, he said that he didn't know who she was at the time, but later recognized her from photos. He wasn't really concerned with her during the experience, because he didn't really know who she was.]

Penny: Did you hear any unusual sounds at all?

Not really ... only ... no. I could see a phone but I couldn't hear it; I could only see someone speaking on the phone but I couldn't hear what they were saying. I was looking down and I could see who was around me – you, Penny; two to three other doctors; sister was there; and the physiotherapist and two others.

I was enclosed in a room heading towards my father and a gentleman with scruffy, long hair that needed combing. Who the gentleman was, I haven't got a clue. I could say it was Jesus, I could say it was God, but who am I to know that? He didn't speak to me saying it was Jesus, but I know it was my father. ... My father was there.

Penny: Did he look like typical pictures you've seen of Jesus?

Sort of, yes, but in the pictures Jesus is in white, like a white cloak, whereas it could have been a white shirt, mostly white. My father was in his working clothes ... in what he used to wear to work, always smart; he was always a very smart gentleman. Collar and tie, these were his working gear. I don't know why I pictured him that way. Jesus was wearing a shirt. He wasn't standing on two legs, only from the waist up I could see. Like you see on TV, cut off half way.

Penny: Was that the same for your dad, was he cut off half way?

Yes, yes, they were both like that. They weren't standing up and walking towards me; I was going towards them.

Penny: Would you say that you were up at the height of the ceiling when you were out of your body?

There was no ceiling.

Penny: You could have been higher than the ceiling?

Oh, yes, there was no ceiling at all. That's what I mean, it was just a room ... what I thought was a room. It could have been a square tunnel going up towards my father, but no barrier stopping me going up, no ceiling; it was a complete clear entrance.

Penny: So when you were looking down at your body, how high up in the air do you think you were?

Oh, God, it's hard for me to say. ... Um ... well, I'm a carpenter so I've been up on roofs. Say a three-story, two-story building. About that, looking down. A big house height – I could see my body and I could see what was going on. I wasn't so high up that they were like ants. I worked on the Guild Hall clock; I was up there and the people

were ants. No, not as high as that; say, a three-story building or a two-story building.

Penny: In this out-of-body state, did you try to communicate with any of the nurses around you?

The only thing I know is the doctor said, "There's life in the eye." I looked up and I was happy and the gentleman was telling my father, "He's not ready yet; he's got to go back." I don't know what was happening, but I gradually came back down into my body and that's when the pain started happening again.

Penny: When you came back did your father just fade in the distance, and this man?

Yeah, when I came back into my body. I must have been seeing my father when I came back into my body, then said goodbye or something like that, and it eventually cleared, but I remember I was in terrible pain again. You were there, Penny, and two doctors. But you with the lollipop, sponge, yes, like a mouth wash.

Penny: I can remember doing that, but at the time you were completely unconscious and your eyes were closed.

Well, I could see that, as plain as I can see you now [adamant].

Penny: Did you hear me say that I was going to clean your mouth?

No, I didn't hear anything. I was just looking back and could see you doing something with my mouth and seeing this long, pink thing.

Penny: Was there any part of this experience that frightened you?

No, not at all. In fact it was beautiful; it was wonderful.

Penny: Is the experience still very clear in your mind?

Oh, yes, yes. It's as if it happened yesterday; I'll never forget it. Not like the hallucinations.

Penny: What do you remember about the hallucinations?

Oh, they used to happen every time I pressed my morphine button, you know, the PAC or PCA [patient-controlled analgesia].

Penny: Yes, the PCA.

[The morphine PCA had been discontinued a few days prior to his NDE, and no such drugs were administered on the day of his NDE.]

Every time I pressed that button, the hallucinations would start. The room would spin around, the walls would move, and I'd see stupid things that weren't there.

Penny: How did you know they were hallucinations?

I knew they weren't real; they were a bit like, like, dreamlike, but worse.

Penny: Were they similar to the other experience you remembered?

Oh, no. They were very different. **That near-death experience was real;** there's no doubt in my mind. The hallucinations, well, they weren't real; it was like a bad dream gone wrong. Stupid things were happening, you know? No, they were both very different experiences.

Penny: Do you feel like you've learned anything from the experience?

Well ... no fear about death.

[Another remarkable aspect of this NDE was the fact that the patient was later able to open his previously contracted hand. This was established during follow-up when he misunderstood one of the questions. When born, the patient had cerebral palsy, which resulted in a contracture of his right hand. He had previously worn a splint on his hand and had never been able to open it.]

Penny: When you were in this state and not in your body, were there things you could do that you can't in your physical body?

Well, yeah, that's what I mean; when I came back down I could open my hand. [He misinterpreted the question.] This hand has always been strong [left] but this hand [right] used to be like this [fist clenched and contracted under]. All my life, for 60 years, my arm has always been like this; I could never open it. My father used to say, "The monkey is in the cage." Now I can open it. They told me that my kidneys weren't working properly, and now they're working perfect, so I don't know what that was. Also, I know I lost a lot of weight. My ankles used to get very swollen and now they're like a two-year-old's; they're thin. Even my sister was surprised about my hand. I've got cerebral palsy and my hand used to be like this [clenched and twisted underneath]; now I can open it. It feels a bit tight, but I do open it.

Penny: Have you ever been able to open it like that before?

No, I've never been able to open it like that, Penny. Never; only a little bit.

Penny: That is only since the experience? Or was it before?

Since the experience. I can do everything with it, all the cooking. They told my sister that I didn't have to have the kidney treatment because it was all working ... and my hand was unusual. Also, what I noticed since I came home, I used to turn my foot in; I can't understand this, but I don't do that anymore. I'm walking straight as a die, don't know why; I've got taller – not taller, but I walk straighter. Also, they cured my hand and kidney but gave me drop foot, but now my drop foot has gone. I don't know why ... they say it don't go; it's bound to go in some cases.

Discussion

Was the patient's experience just a mental model constructed from his residual sight, sound, and touch? This patient had been in the ITU for eight days prior to the experience and was very familiar with the layout of the unit and the daily routine. At this point, it is pertinent to examine the features of his OBE separately.

Veridical Features of His OBE

1. *The doctor shining the light in his eyes.* The doctor who checked his pupils was the consultant anesthetist, who entered the ITU for the first time that day, just as the patient's condition deteriorated. The junior doctors were unavailable; subsequently the consultant reviewed the patient. When the patient's condition stabilized following the administration of fluid to increase the blood pressure, the junior doctors arrived and the consultant returned to his office until he began the ward rounds later that afternoon. The consultant checked that the patient's pupils were reacting by shining a light into them. He remarked, "Yes, they're reacting, but unequal." The patient reported hearing the doctor saying, "There's life in the eye" or "something like that." This was inaccurate, although this highlighted his interpretation of what was said and was a good comprehension of what the consultant meant.

The patient was unconscious by the time the consultant reviewed him, and remained unconscious when the consultant left the bedside. It was only as the ward rounds approached the patient's bed area four hours later that he regained full consciousness and excitedly tried to communicate what he had experienced. The patient correctly identified the consultant as having shone the light in his eyes, rather than one of the junior doctors with whom he was familiar. The patient was deeply unconscious at this time and had not previously seen the consultant that morning, although he had seen the other junior doctors. However, it is possible that he heard the consultant's voice at the time of unconsciousness, which may have contributed to the construction of a mental model.

2. *The nurse cleaning his mouth.* When the patient had been put back to bed, he had drooled from the side of his mouth. Once his condition had stabilized, the nurse cleaned his mouth. He knew who his nurse for the day was, and was familiar with the nursing procedures to be performed. He knew that his mouth was cleaned by using a pink sponge dipped in water. When performing any nursing procedures the nurse always explains her actions, even if the patient is unconscious. He could therefore have heard the nurse explain her actions, although he adamantly denied having done so, and could also have felt her cleaning his mouth. However, because he had drooled, a long suction catheter, normally used for endotracheal suction, was used to clean the oropharyngeal secretions from the back of his throat.

This long catheter was used in preference to the shorter, hard, plastic Yankauer sucker, as it is softer and more comfortable for the patient; this is not the usual procedure, as most nurses use the Yankauer sucker. After his mouth was cleaned, a moist pink sponge was put into his mouth to freshen it up. The pink sponge is not long, as the patient reported, but the suction catheter that was used first was long. He could therefore have “seen” both pieces of equipment. Also, the secretions cleaned away were pink in color.

3. *The physiotherapist “poking her head around the curtains.”* The patient also reported seeing the physiotherapist looking very nervous and “poking her head around the curtains” to see if his condition was improving. The same physiotherapist was on the ward rounds at the time he reported the experience. She had been on duty all day, and the patient was aware of this fact. It is possible, but not confirmed, that she inquired verbally about the patient’s condition, as she was “poking her head around the curtains.” Thus the patient could have heard her asking, which could have contributed to the construction of a mental model. The patient’s eyes were closed throughout the period the physiotherapist was checking on his condition. However, if his OBE was a mental reconstruction, it is surprising that the patient should report her to be “poking her head around the curtains, looking very nervous.” It would be more likely that he would construct a view of her standing closer to the bedside, without the need to “poke her head around the curtains.”

Was His OBE a Mental Reconstruction?

Could a mental model have been constructed during the four hours it took for the patient to regain full consciousness? Could it have been his brain’s attempt to make sense of what had occurred through the senses, especially residual sight, sound, and tactile stimulation? The discrepancy between what the consultant said (“Yes, they’re reacting, but unequal”) and what the patient reported he said (“There’s life in the eye”) could be accounted for by the possibility that he was confused, and so unable to pay full attention to verbal cues. This would suggest that “viewing” the situation with such clarity would not be possible if it was due only to a mental model reconstructed from what he could hear and feel. If the mental reconstruction was based on what he could hear, then it would be expected that he would accurately report the verbal cues he had heard.

Despite these discrepancies, the patient's description of what happened while he was unconscious was extremely accurate and was reported immediately as soon as the patient regained full consciousness. It is possible that some of the information could have been gained from the senses, but that is an incomplete explanation for the detailed events described by the patient and witnessed by the senior author. The experience remained vivid and accurate when recalled on follow-up on several occasions from one year to five years after the experience.

*Did the NDE Happen as the Patient was
Regaining Consciousness?*

While it is impossible to speculate on the timing of the patient's experience of "meeting" his deceased father and mother-in-law, it is possible to say that the experience of observing the nurse cleaning his mouth with what looked like a pink lollipop, and observing the doctor shining a light into his eyes, must have happened at least three hours before the patient regained full consciousness. As the medical records show, the patient was deeply unconscious with his eyes closed at the time when those events occurred, and the experience of undergoing those events must have been contemporaneous with their occurrence rather than happening four hours later while the patient was regaining consciousness.

Was the NDE Attributable to Abnormal Arterial Blood Gases?

Prior to loss of consciousness, the patient's blood saturation level of oxygen decreased from 96 percent to between 70 and 86 percent. This decrease was promptly rectified by manually ventilating with 100 percent oxygen. The oxygen levels briefly decreased again but then increased again and remained at 94 percent and above. He was still conscious when the oxygen levels were normalized. An arterial blood gas sample was not extracted until approximately an hour after the event, by which time the patient's condition was stable. The results were as follows: the partial pressure of oxygen (pO_2) was 10.2 kilopascals (kPa), within the normal range of 10 to 13 kPa; the partial pressure of carbon dioxide (pCO_2) was 10.6 kPa, above the normal

range of 4 to 6 kPa; and the acidity (pH) was 7.176, more acidic than the normal range of 7.35 to 7.45.

Although the oxygen level was normal, the carbon dioxide was elevated. Effects of high levels of carbon dioxide (hypercarbia) may include some features similar to components of NDEs, include feelings of ineffability, a sense of bodily detachment, telepathic communication with a religious figure, perception of a bright light, memories from the past, and feelings of cosmic importance. Other effects of hypercarbia include seeing animated objects, compulsion to solve mathematical problems, the perception of geometric figures or patterns such as stained glass, and frightening perceptions of “shapeless and objectless horror.” Some even described the feeling of hypercarbia as a “real dream” (Meduna, 1950).

This patient did not report any dreamlike qualities, nor did he report any geometric patterns or frightening aspects, nor the compulsion to solve mathematical problems. His OBE was not merely a sense of bodily detachment, as may be reported in hypercarbia, but a definite feeling of existing independently of his body and accurately viewing events that were later verified by the staff present. Many who undergo an NDE are adamant that the experience was not a dream. In addition, two other patients in this study who reported a NDE or an OBE had levels of carbon dioxide that were within the normal range at the time of their experiences.

It should also be emphasised that this patient’s blood tests can act only as a guide, as it is unknown if the NDE was occurring at the time the blood was extracted. In fact, the blood was extracted approximately an hour after the events viewed by the patient from an out-of-body perspective, which may indicate that the levels had increased gradually over the hour and did not accurately reflect the level at the time of the OBE. The time that elapsed from when the patient was conscious in the chair to when he was put back to bed and viewed events from an out-of-body perspective was approximately 10 to 15 minutes. It is unlikely that the levels of carbon dioxide would have risen to the high level in such a short period of time.

Was the Experience Attributable to Drugs Administered?

During the experience there were no intravenous drug infusions in progress and no drugs were administered. He was given only fluid to improve his blood pressure.

Did the Patient Construct the NDE to Help the Nurse Who Was Looking After Him?

Before the patient's experience, the nurse's research into NDEs had been concerned only with patients who had survived cardiac arrest. The research had not previously been discussed with the patient, and he had no knowledge that such research was being conducted. In fact, had the patient not reported his NDE, he would not have been asked about what he recalled during the time he was unconscious, and would not have been included in the research.

The fact that he reported the experience immediately upon regaining consciousness makes it highly unlikely that he had made it up. Following a period of unconsciousness, patients are usually quite dazed, and constructing an elaborate scenario to please the nurse would be most difficult. Furthermore, the nurse was not present at the time that he regained full consciousness and reported the experience to the doctors on the ward rounds.

The Unusual "Healing" of His Contracted Hand

It was documented in the patient's medical admission notes that he had cerebral palsy with a right spastic hemiparesis. The patient stated that his hand was claw-like and had been so all his life; this was supported by the testimony of his sister. The extent of the contracture had not been formally assessed or documented prior to the NDE. However, a splint had been made for the patient's hand by the hospital appliances department several years prior to the current hospital admission. The patient stated that the splint had not been effective and that his hand remained contracted. The medical and physiotherapy notes were checked to see if extensive physiotherapy had been performed on his hand; it had not. However, it was documented in the physiotherapy notes that there was increased muscle tone in his contracted hand prior to discharge. This was discussed with the physiotherapist, who explained that the hand should not be able to open without an operation to release the tendons that had been in a contracted position for 60 years. No such operation had been performed. It remains unexplained how it is possible for the patient to be able now to open and use his previously contracted hand.

There is no reason to disbelieve the patient's or his sister's statement regarding the extent of his contracture prior to his NDE. Indeed, the fact that his contracture had resolved was mentioned only

when the patient misinterpreted one of the questions asked during the in-depth interview. Had he not misinterpreted the question, the fact that he is now able to open his hand may have gone unnoticed.

Conclusion

There are many aspects of this case for which our current brain/mind models cannot provide an adequate explanation. Despite not identifying the hidden symbol, the patient accurately reported the actions of the medical personnel present during a time when he was deeply unconscious with his eyes closed. The fact that he was able to open his previously contracted hand defies explanation. The veridical details of this case are corroborated by the medical notes and the testimonies of the patient, his nurse, and physiotherapist, who were present at the time the experience occurred. This study confirms that cases of interest that cannot be dismissed or ignored can be captured during a prospective study.

This interesting case history was elicited from one small prospective study, conducted in one hospital. Further prospective research on a much larger scale is warranted in order to provide a wider understanding of the NDE and, indeed, consciousness. Although this is only one case, it strengthens the cumulative experience derived from many other individual cases (Sabom, 1998, Cook, Greyson, and Stevenson, 1998; Sabom, 1998; van Lommel, van Wees, Meyers, and Elfferich, 2001) that suggest that our current models of consciousness must expand in order to provide an adequate explanation of NDEs.

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Critique of “A Prospectively Studied Near-Death Experience with Corroborated Out-of-Body Perceptions and Unexplained Healing”

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ABSTRACT: An article titled “A Prospectively Studied Near-Death Experience with Corroborated Out-of-Body Perceptions and Unexplained Healing” by Penny Sartori, Paul Badham, and Peter Fenwick was published in the *Journal of Near-Death Studies* in 2006. The authors concluded that the reported case strengthened “the cumulative experience derived from many other individual cases . . . that suggest that our current models of consciousness must expand in order to provide an adequate explanation of NDEs” (p. 83). However, a closer examination of Sartori et al.’s paper raises significant questions about their methodology and interpretation of their findings. In particular, certain methodological weakness and possible interpretation biases undermine the paper’s conclusions. This critique addresses both Sartori et al.’s original paper and relevant parts of Sartori’s (2008) Ph.D. thesis published subsequently.

KEY WORDS: near-death experience; critique; methodology; memory; expectation.

In 2006, Penny Sartori, Paul Badham, and Peter Fenwick published in the *Journal of Near-Death Studies* an article titled “A Prospectively Studied Near-Death Experience with Corroborated Out-of-Body Perceptions and Unexplained Healing.” The article was based on Sartori’s (2008) dissertation thesis study in which she investigated 10 research questions about near-death experiences (NDEs). However, Sartori et al.’s 2006 paper focused on one of the questions: whether the out-of-

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body experience (OBE) in NDEs is veridical, that is, whether experiencers' reported perceptions are sometimes verified as having been accurate.

The authors began the article by reviewing some of the previous research on NDEs and representing their own study as having been a prospective, rather than retrospective, approach. Sartori et al. (2006) conducted the study where she worked as a nurse in the Intensive Therapy Unit (ITU) at Morriston Hospital, Swansea, Wales. The focus pertinent to the article was validation of the OBE aspect of the NDE by attempting to verify the experiencer's observations while in this state. The assumption usually made is that the near-death experiencer (NDER) was clinically dead, or at least unconscious, at the time of the OBE. Sartori et al. attempted to gain veridical evidence by hiding brightly colored visual targets in the ITU out of normal range of sight, visible only from above. The authors described a case study of one of Sartori's patients and provided excerpts from his interview. They explored alternative explanations for his verified perceptions, including hypercarbia, analgesics, hallucination, and mental models, before concluding that his corroborated observations could be taken as validating the objective reality of his NDE. They also reported an unexplained healing in this patient after his NDE.

Criticism of the Methodology

I acknowledge some positive points about Sartori et al.'s (2006) methodological approach in this study. First, they used a mixed methodology that incorporated both quantitative and qualitative elements: They recorded statistical data on the incidence of NDEs and accompanying data on patients' blood chemistry, and they also conducted open-ended interviews to elicit data regarding NDErs' subjective experiences. Second, this study was prospective as opposed to many previous studies that were retrospective. Rather than relying on anecdotal accounts of observations made during NDEs, the researchers used pre-defined target symbols in an attempt to more convincingly assess accuracy of observation and thus avoid using retrospective anecdotes. Third, they drew blood samples during the patients' periods of unconsciousness, which enabled the authors to test some explanations of NDEs that invoke biochemical factors. Fourth, one of the observations the patient made during his NDE, the rather unique behavior of the physiotherapist repeatedly peeking nervously around a corner at the resuscitation

process, seemed reasonably accurate. Fifth, the patient's condition had resulted in his experience of both hallucinations *and* an NDE, and he therefore was able to distinguish between the two. Finally, in her Ph.D. thesis, Sartori (2008, pp. 316–317) drew attention to the lack of understanding and support for patients who have had NDEs and who need to integrate the experience into their subsequent lives.

However, I also have a number of criticisms of the research methodology. To begin with, the reliability of accounts of anomalous experiences, including NDEs, have been challenged both on the basis of expectation (Katz, 1978; Lindbeck, 1984) and fallibility of memory (Blackmore, 1982; Neher, 1980). Some authors have countered regarding the role of expectation (Fox, 2005, p. 132; Greyson, 2000, p. 332) by citing accounts in which NDErs reported unexpected features of their experiences. However, this objection seems to be based on the assumption that such expectation is conscious and straightforward on the part of the NDEr. There is much empirical research that shows that experience can be influenced by an interacting collection of prior factors, both internal and external, of which an experiencer may be unaware. The concept of 'set and setting' in drug use research is well established (Delgarno & Shewan, 2005; Hood, 2005, p. 354; Shewan, Delgarno, & Reith, 2000). Walter Pahnke, who conducted the famous 'Good Friday' (Doblin, 1991) experiment commented:

Psychological set is here defined as factors within the subject, such as personality, life history, expectation, preparation, mood prior to the session and, perhaps most important of all, the ability to trust, to let go, to be open to whatever comes. The setting is here defined as factors outside the individual, such as the physical environment in which the drug is taken, the psychological and emotional atmosphere to which the subject is exposed, how he is treated by those around him and what the experimenter expects the drug reaction to be. A person who has taken a psychedelic drug seems to be much more sensitive to non-verbal cues, perhaps because of an increase in suggestibility, but the exact role of suggestibility is a problem that needs to be further investigated. (Pahnke, 1967)

Researchers have highlighted that set and setting may also be important factors to consider in NDE research (Jansen, 1997). It has also been demonstrated that suggestion made without subjects' awareness can influence subjects' perceptions of subsequent events (Wiseman, Greening, & Smith, 2003), often without subjects having any memory that the suggestion was made (Wiseman & Greening, 2005).

Caroline Franks Davis (1989) recognized the problem of memory

processing in relation to accounts of religious experiences, as did Mark Fox:

When we add to this sequence the recognition that memory is fluid, dynamic, and ongoing, and not just a static, fixed, once-for-all recollection of things past, we begin to see the very real potential that exists both for the construction of an extremely coherent and integrated story and why such a story should come to assume such vividness and detail. (Fox, 2003, p. 203)

That people's memories can be easily influenced by external sources has been thoroughly documented (Loftus, 2001, 2002, 2003b). Elizabeth Loftus commented that "leading questions could contaminate or distort a witness's memory" and that "misinformation can influence people's memories when they are interrogated in a suggestive fashion or when they talk to other people who give their version of events" (2003a, p. 868). Again, Fox recognized this possibility in the context of NDEs (2005, p. 199).

Finally, another cognitive mechanism that may be implicated in the construction of NDE testimony is cryptomnesia (Brédart, Lampinen, & Defeldre, 2003; Brown & Halliday, 1991), the phenomena of reproducing information under the mistaken belief that it is original. Kihlstrom (1987) reported that "implicit memory effects are conceptually similar to subliminal perception effects, in that both reveal the impact on experience, thought, and action of events that are not accessible to conscious awareness" (p. 1449). Pekala and Cardeña (2000) listed nine limitations and risks to take into account when assessing verbal reports of experiences: forgetting, reconstruction and confabulation, verbal description difficulties, distortion and substitution in observation, censorship, lack of independent verification, dissembling and social desirability, demand characteristics, and 'state-specific' memory. They cautioned that "investigators should remember that research is a social context in which they exert influences that they should be aware of and perhaps measure or control" (p. 56). In my view, Sartori et al.'s (2006) methodology did not control adequately for these cognitive mechanisms.

On another note, Sartori et al. (2006) reported that, prior to the patient interview, she gave him a description of her research in detail (p. 73). She did not provide the specific content of this description, so it is impossible to judge if the description may have subsequently influenced the patient's answers. Similarly, she conducted the study over a period of five years, and it seems unlikely that her research

and interests remained completely secret during this time. Therefore, knowledge about the research could have influenced patients who subsequently had an NDE. This possibility would not rule out the apparently veridical observational evidence, but it could have influenced both patients' experience—due to implicit memory, suggestion, or subliminal processing—and subsequent accounts of their NDEs—due to fallibility of memory.

Sartori et al. (2006) did attempt to rule out the possibility that picture contents on the target cards could be guessed: They asked 50 staff and visitors to guess what was on a test set of cards and then excluded use of cards that were guessed correctly. The pictures that were used in the study featured scenes and advertisements (Sartori, 2008, p. 134). However, this pre-study activity may have leaked information about the research to the hospital staff. Even though the pictures on the cards actually used in the study were different, it isn't clear from Sartori's report how the test set of pictures differed from those used in the study. Any similarity could have provided a source of information leakage. To avoid this problem, the researchers could have used a completely independent control group to determine the probability of correct guesses due to chance.

Although only Sartori (2008) knew what pictures were on the cards, and she was the only person who moved them during cleaning of the ward, it is difficult to rule out the possibility that curious work colleagues could have peeked; previous researchers in a similar study had encountered this problem (Holden & Joesten, 1990). Again, this possibility would provide a source of information leakage that could have affected patients' experiences and reports. This point seems speculative, but Sartori (2008) did report that the interviews about patients' NDEs were performed in ITU with the screens drawn (p. 139). Again, the possibility of staff and patients overhearing and subsequently being influenced is difficult to rule out.

Further criticism could be made of the interview technique. The transcript of Sartori's interview with the patient following his NDE and recovery betrays that she included several leading questions. For example, she asked, "Did you hear me say that I was going to clean your mouth?" (Sartori, 2006, p. 76) rather than "Did you hear me say anything?" Unsurprisingly, the patient then proceeded to describe Sartori doing something with his mouth. Additionally, she provided the patient with information during the interview that could have influenced his subsequent answers:

PENNY: Do you recall hearing anything while in this state?

PATIENT: Only the words that my father spoke, and the gentleman saying, "He isn't ready yet." Going back . . . I heard voices down below but couldn't make out what they were saying. Only thing . . . something about my eye, life there. . . . I don't know what he meant by that.

PENNY: I remember that. It was the consultant actually, and he looked in your eye and he shone a torch and he said, "Yes they are reacting, but unequal." (Sartori, 2006, p. 74)

Sartori did make some efforts to avoid suggestion. The patient information and consent form did not mention NDEs and did not reveal anything about the research by referring only to "unusual experiences" (Sartori, 2008, Appendix 1). Also, if patients had questions about the purpose of the research, Sartori answered them only after the interview was complete (p. 133). However, Sartori administered the Near-Death Experience Scale (Greyson, 1983) *prior* to the open-ended interview (p. 132), which may have primed experiencers' responses during the interviews. For research like this, in which the aim is verification of events, such information should have been given *after* the interview was complete, not before it. Sartori appears not to have asked one important question during the interview: Did the interviewee have any knowledge of the author's research and interests *prior* to his NDE? Sartori appears to have made this assumption, but it is not clear whether she checked it overtly. Regarding the patient in question, that he may have been aware of Sartori's focus could be inferred from his eagerness to report his NDE upon regaining consciousness. Even though the veracity of the patient's answer to this question depended on his honesty, an answer would have helped to defend against the criticisms discussed previously regarding expectation.

Another major problem with this—and other similar research, such as Ian Stevenson's (1966) and Erlendur Haraldsson's (2000) reincarnation studies—is that they hinge on the *assessment of accuracy* of a verbal report of a subjective experience. How is this accuracy measured? Drawing from earlier research of this type (Holden, 1988; Holden & Joesten, 1990), Sartori et al. could have strengthened the methodology greatly by using a double-blind technique. The symbols could have been designed or chosen by someone having access to neither the patients nor the medical staff. The staff, including Sartori, would then have been ignorant of the targets, thus ruling out information leakage. Secondly, Sartori et al. could have employed a panel of

people not otherwise associated with the study to judge the accuracy with which patients' reports corresponded to hospital records and to hidden targets. They could have scored accuracy of the reports individually to produce an averaged score. Although still problematic, this procedure would have helped to avoid experimenter bias in analysis of the results.

A more general methodological flaw is regarding the isolation of confounding factors. What is this method actually testing? Any 'hits' by patients in describing the hidden cards could potentially be taken as evidence, not for a veridical OBE, but for precognition or telepathy.

Finally, although Sartori et al. (2006) considered the patient's unexplained healing to have been a significant development, they did not assess the condition of his hand prior to his NDE. This aspect of the case should not, therefore, be included as evidence in a prospective study.

These criticisms may seem somewhat trite and pedantic, but I believe them to be justified considering that the phenomenon being tested is potentially paradigm shattering: Exceptional claims demand exceptional evidence.

Criticism of the Results

Regarding the results of the study, the primary issue is that, strictly speaking, it failed. Not one patient who reported an NDE also reported having observed the hidden cards. Therefore, I find it unclear how the authors have arrived at their conclusion, which may have been justified had the study been successful, solely on the basis of circumstantial observations. I would suggest that, whereas this case may add another retrospective report to the NDE data, it does not meet the prospective requirements of the study itself.

I found the presentation of the results also to be somewhat misleading. The transcripts of three separate interviews were concatenated into one account, giving the erroneous impression of a continuous narrative flow. Obviously it is impossible to publish full transcripts in a single journal article, but, to avoid confusion, Sartori et al. (2006) should have presented the excerpts unambiguously with their correct dates. This practice would have avoided researcher bias including a possible tendency to reconstruct evidence in a way that seemed to support their conclusions.

Also, the results seem to contain some internal inconsistencies. At first the patient clearly stated that he did not know what the nurse

had put in his mouth (a catheter, then a pink sponge), but later he identified it without any doubt. The implication here is that Sartori revealed this information to him during the interview process; if this were the case, the patient's certainty would have been due to Sartori's revelation rather than to the patient's own perception.

Criticism of the Discussion

I found it difficult to agree with Sartori et al. (2006) where they used phrases such as "strong evidence," "many veridical elements," "extremely accurate account," "detailed events described," and "accurately reported the actions," phrases I do not think accurate considering the results they presented. I found only three veridical features listed in the report: a reference to an eye exam by the consultant, the nurse (Sartori) cleaning the patient's mouth, and the behavior of the physiotherapist.

The first and second of these features were actually reported inaccurately as revealed by the interview transcript. The consultant said, "Yes they are reacting, but unequal," not "something about my eye, life there" as the patient reported (Sartori et al., 2006, p. 74). Also, the patient was unable to identify the object that the nurse had in his mouth or what she was doing; only the color was correct. He initially described this object as "a long, pink lollipop" (p. 73), but according to Sartori et al., "he knew that his mouth was cleaned by using a pink sponge dipped in water" (p. 78). The patient had been in the ITU ward for some time and probably had a passing familiarity with its equipment and procedures. Among the large number of features the patient reported after his NDE, the majority were either not verified or were unverifiable. In fact, from the transcript the patient seemed more interested in the non-veridical aspects of his experience. This is an important point to which I will return later.

Considering that the challenge of ascertaining the timing of NDEs is critical to their explanation, that is, whether they occur during loss of consciousness, clinical death, unconsciousness, or on recovery, I found it problematic that the two estimates Sartori et al. (2006) provided of the patient's return to consciousness contradict each other. In the first instance he reportedly regained full consciousness three hours after the incident (p. 72), but in the second instance he reportedly recovered full consciousness four hours afterwards (p. 78).

Additionally, although the patient was reportedly unresponsive, he

also reportedly displayed movement in his eyelids and limbs 30 minutes after he lost consciousness (Sartori et al., 2006, p. 72). Among the questions these data raised for me was the possibility that the patient was drifting in and out of consciousness or partly conscious for some of the time. Occasional or partial consciousness could easily explain his apparently veridical observation of the physiotherapist's behavior. From my own experience, in circumstances where one momentarily regains consciousness after being anesthetized, it is not easy to distinguish later whether the semi-waking interlude was real or imaginary. Crammer (2002) also reported this phenomenon from a first-person perspective when he entered a confused state and lost consciousness due to renal failure. He reported that "these arousals serve to show that, even in unconsciousness, auditory and visual stimuli flow in and are a reminder that they can stimulate without conscious perception" (p. 74). It is well recognized that anesthetically induced unconsciousness can involve different depths of awareness (Kihlstrom & Cork, 2007). It would seem reasonable to assume that the same can be said for unconsciousness however it arises. Kihlstrom and Cork reported that "adequately anaesthetised patients can, indeed, show postoperative memory for unconsciously processed intraoperative events" (p. 636). They proceeded to describe how "implicit perception," similar to that which operates in "blindsight," also seems to operate during unconsciousness (p. 638). The implications of these findings make it conceivable that Sartori's patient became aware of the physiotherapist's behavior through these mechanisms.

Finally, the movement of the patient's eyelids could suggest REM, which is associated with the dreaming state (Bunning & Blanke, 2005; Dement & Kleitman, 1957) and therefore raises the possibility that this was the point at which the patient constructed the NDE. Another possible point at which he could have generated the experience is when he was lifted back onto the bed. Bunning and Blanke (2005) report that "dynamic body position changes seem to influence the occurrence of OBEs" (p. 338).

It is not entirely clear what Sartori et al. (2006) considered significant about the apparently healed hand considering that their research project was an attempt to investigate whether or not consciousness can exist independently of the physical body. The patient also reportedly made a reference to the recovery of his kidneys after the NDE (p. 77); however, Sartori et al. clearly stated earlier in the article that his kidneys had recovered *prior* to the NDE (p. 71). Cases of spontane-

ous healing are not uncommon, have a long history, and constitute a field of investigation in their own right (Ransom & Alicke, 2012; Rose, 1954; Zanni & Wick, 2005).

Truth versus Meaning?

The question of whether consciousness depends on the physical body is obviously important and demands further research. However, it is easy to overlook another important aspect in studies such as these: the meaning for, and effect of, the experience on the individual. As with other types of anomalous experiencers, NDErs may be wary of relating their experience to others. Sartori (2008) drew attention to this point: "Many of these NDErs had never told anyone or, in some cases, only very close members of family about the experience. This was because they did not fully understand it or they feared ridicule or disbelief" (p. 295).

However, many such NDErs are often glad to talk about their experience in a safe and supportive environment: "The patients who I did manage to follow-up were very grateful for the chance to discuss their experience again" (Sartori, 2008, p. 141). Sartori also pointed out that "from a nursing perspective, it is helpful for the NDEr to be given the opportunity to discuss the experience, thus helping them to integrate it into their life, giving them a greater understanding of their NDE which may otherwise take many months" (p. 317). However, she also noted an apparent lack of appreciation of the importance of NDEs amongst the majority of healthcare staff: "Very often healthcare professionals do not understand the experience, and the often dismissal of the experience as a side effect of drugs given is unhelpful" (p. 316). Perhaps it is the NDE's experiential value, rather than its evidential value, that is more important.

Conclusion

In summary, I found too many methodological problems with this study to accept the conclusions with much confidence. Verification of the out-of-body component failed, and the circumstantial evidence provided is either inaccurate or can be explained by known psychological processes. Most of the criticisms concern the influencing of NDErs' experience and descriptions and the accuracy of assessing verbal accounts. These problems may have been alleviated somewhat by an at-

tempt to include a double-blind protocol, which is commonly used in many scientific and parapsychological studies. Also, although Sartori et al. (2006) went some way towards ruling out biochemical explanations in this particular case, it should be considered that NDEs are probably complex multi-factor phenomena and are unlikely to have a single explanatory mechanism. Although this study cannot realistically justify the conclusion that an expanded model of consciousness is required to explain NDEs, it does help draw attention to the importance of such experiences in clinical and healthcare contexts.

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Response to “Critique of ‘A Prospectively Studied Near-Death Experience with Corroborated Out-of-Body Perceptions and Unexplained Healing’”

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ABSTRACT: In this article, I respond to a critique by Michael Rush of a 2006 article from this *Journal* in which I and my co-authors described a case of a near-death experience with veridical components and an inexplicable healing. I address each point from the critique in the order in which it was raised. Overall, I found most of the criticism to have been of points I had already addressed in previous publications, and the critique also provided me an opportunity to clarify a few points I had not previously detailed. For me, this professional exchange has served to underscore the difficulty of conducting methodologically sound prospective research on near-death experiences.

KEYWORDS: near-death experience; out-of-body experience; veridical; healing; critique

I would like to thank Janice Holden, editor of this *Journal*, for giving me the opportunity to respond to the article written by Michael Rush. I read with interest his many criticisms of my work in general (Sartori, 2008) and the article that I co-authored with Paul Badham and Peter Fenwick that was published seven years ago (Sartori, Badham, & Fenwick, 2006). It is always helpful to get another perspective, and I welcome constructive criticism, as I believe it is essential to take into consideration for future research.

In view of the issues raised, I think I am best placed to reply in full as opposed to the other authors of the article (Sartori et al., 2006),

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as it was I who conducted the research and it is also my PhD thesis (Sartori, 2008) that has been the target of Rush's criticisms. In the following text, I have responded to each criticism in the order in which Rush presented it in his article. But first, I would like to make some clarifications.

On page [2], Rush stated that "the assumption usually made is that the [near-death experiencer] is clinically dead, or at least unconscious, at this time." I would like to clarify that no such assumption was made; rather, we (Sartori et al., 2006) stated clearly in the article that the patient concerned was deeply unconscious, his eyes were closed, and he was not responding to verbal command or deep painful stimuli.

Also, in his introduction, Rush stated that we (Sartori et al., 2006) concluded that "[the patient's] corroborated observations could be taken as validating the objective reality of his NDE." In actual fact, this is Rush's inference but is not the conclusion we stated in the original article. Part of the actual conclusion from the original article was,

There are many aspects of this case for which our current brain/mind models cannot provide an adequate explanation . . . Although this is only one case, it strengthens the cumulative experience derived from many other individual cases (Cook, Greyson, and Stevenson, 1998; Sabom, 1998; van Lommel, van Wees, Meyers, and Elfferich, 2001) that suggest that our current models of consciousness must expand in order to provide an adequate explanation of NDEs. (Sartori et al., 2006, p. 83)

Rush stated that the article focused on my research question, Is the OBE veridical? However, that question actually was not the sole purpose of the article. My co-authors and I actually wrote the article as a case history that emerged during a prospective study in which I set out to investigate many aspects of near-death experiences (NDEs), including whether the out-of-body aspect of the NDE in which the experiencer purportedly perceived the material world (ND OBE) involved veridical perceptions. Both the veridical aspect and healing aspect occurred in the case of Patient 10, so we discussed both aspects in the article.

Reliability of Accounts Based on Fallibility of Memory and Expectation

On page [6] Rush stated, "In my view, Sartori et al.'s (2006) methodology did not control adequately for these cognitive mechanisms."

By “cognitive mechanisms” Rush was referring to memory fallibility, expectation, and cyptomnesia.

Regarding memory fallibility, the research I undertook was planned a year in advance, and we had taken into consideration the possibility of expectation and memory errors influencing any experiences that may have been elicited during the course of the study. One reason to interview the patients as soon as possible and take notes during the interviews was to reduce the possibility of errors of memory.

With regards to expectation, if Patient 10 had generated his NDE based on expectation, I would have anticipated that nothing in his experience would have been surprising to him; however, he did, in fact, express surprise at some aspects of his experience. For example, he saw his deceased mother-in-law, but he had never met her while she was alive, so he was puzzled as to why she had appeared. Conversely, he was perturbed that he had not seen his own mother, as he had been emotionally close to her when she was alive. Other patients in this prospective study who reported NDEs also reported unexpected features such as seeing relatives they did not expect to see, whereas some patients didn't see people they had expected and wanted to see (Sartori, 2008).

Set and Setting

I acknowledge Rush's point that set and setting are also important to consider with regards to NDEs, and I agree that the possibility of suggestion is incredibly important to a study like this. I find it puzzling that Rush has gone to such lengths to point out the concept of set and setting considering that I addressed this matter on pages 57–58 of my Ph.D. thesis (Sartori, 2008). Also, the research that I undertook was very different than the drug research that Rush highlighted. Participants in drug research make an informed choice prior to entering into the research and taking the drug, implying that they have knowledge that something will occur and, therefore, have some form of expectation that may influence their experience.

By contrast, prospective NDE research is totally different due to the unpredictable nature of the NDE. Specifically, Patient 10's NDE occurred in totally unexpected circumstances and was not at all in the context of drug research. The NDE occurred while he was making a good recovery from the acute phase of a life threatening illness; thus, his expectation was a continuation of further recovery rather than a sudden deterioration in his medical condition that led to a period of unconsciousness.

Patients Being Susceptible to Suggestion

On page [5] Rush pointed out that external factors can influence an individual's memory of an event, again something I was well aware of before undertaking the study. I would like to emphasise that nothing was suggested to Patient 10 by anyone. At the time of his experience, the data collection procedure had been modified, whereby only patients who had undergone cardiac arrest were routinely interviewed. Patient 10 had not undergone cardiac arrest, so there was no intention to interview him at all. He communicated his experience voluntarily when he regained full consciousness. As the doctors, nurses, and physiotherapists who were on ward rounds approached his bed area, and before any of them had spoken to him, the patient volunteered the information. He pointed to the consultant and identified him as being the doctor who had examined him and had looked in his eye. He pointed to the physiotherapist and described her as having looked nervous and poked her head around the curtains. He also described me having cleaned his mouth with something long and pink. Personnel on the ward rounds had no interest in NDEs, and the consultant told the patient to talk to me about his experience. In fact, I was not present when it was first reported. I returned to the bedside as the ward rounds group was moving on to the next patient and the team told me what he had reported. Therefore, while taking notes, I asked Patient 10 to repeat what he had communicated to the team, and then I explained my research and invited him to participate.

Influence of the researcher and possible contamination of the experience is crucial to a study like this, which is why the protocol had been planned in ways to minimize these possibilities. Patients were first allowed free narrative of their experiences, and then they were asked to complete the NDE Scale (Greyson, 1983). If the Scale score indicated that an NDE had occurred, then a further open-ended questionnaire was administered. Any questions the patient may have had about the study were answered after the interview had been completed. The NDE Scale was implemented before the open-ended questionnaire to avoid an unnecessary lengthy interview if the patient failed to meet the criteria for an NDE. The open-ended questionnaire was based on one used by Kenneth Ring (1980) in his rigorous retrospective study.

Possibility of Patients' Cryptomnesia

The possibility of cryptomnesia is also of great importance to such a study. In this case, cryptomnesia would have taken the form of the patient thinking his memory of events during his unconsciousness came from ND OBE observations at the time of those events whereas, without the patient realizing it, they actually came from memories the patient had formed through normal means such as conversing with others about the events. However, in this case, when the patient reported his NDE upon regaining full consciousness, he had not spoken to anyone else yet communicated his experience of 'viewing' events that I know had occurred because I was present while they were occurring. What he reported was original; there was no mistake in this. Interestingly, on follow-up interviews, the patient reported the experience in the same way as when he had first reported it and did not embellish it.

I also understand other factors that Rush pointed out, referring specifically to nine limitations and risks that Pekala and Cardena (2000) had identified. These factors included "forgetting, reconstruction and confabulation, verbal description difficulties, distortion and substitution in observation, censorship, lack of independent verification, dissembling and social desirability, demand characteristics, and 'state-specific' memory" (p. [6]). These are all extremely important factors, I agree. Unfortunately, it was not possible to control for all of these factors for the reasons stated below. Patient 10 reported his experience spontaneously, voluntarily, and unsolicited. Even if I had a team of researchers on standby to evaluate his testimony, by the time they could have got to the patient, he would have finished describing his experience. Rush's criticisms are all valid when considered retrospectively but virtually impossible to implement in the reality of the clinical area. This research was undertaken in a busy ITU, and the unpredictable nature of NDEs further complicates their investigation. As is often found when research is undertaken, the ideals that were planned for are often not possible in reality.

Data Contamination Due to Giving Patient a Full Description of My Research

Rush has suggested that the description I gave to the patient about the research influenced his response. I would like to emphasize that I

described my research to Patient 10 only after it was established that he had reported components of an NDE. He had clearly described to the doctors, nurses, and physiotherapists on the ward rounds what he had experienced prior to any mention of my research. Rush further asserted that I “did not provide the specific content of this description, so it is impossible to judge if the description may have subsequently influenced the patient’s answers” (p. 6). This is simply incorrect. As evidenced by my Ph.D. thesis (Sartori, 2008, p. 342), I routinely said to patients, “I am interested in the reactions of patients who have survived critical illness. Some patients have indicated that they have experienced certain events while unconscious and very ill. I am sincerely interested in any such experiences no matter what they might be.” I further explained that I would record what patients recalled by allowing them to speak freely about their experience, and then I would ask them to complete a questionnaire (the NDE Scale) followed by asking them a set of questions (from the open-ended interview format). I followed this protocol with Patient 10, and he was then given the opportunity to participate in the research.

Research Study Not Kept Secret

Rush has pointed out that as the research was conducted over a period of five years, it seems unlikely that my research interests would have been a secret. This is correct; it could not have been kept a total secret. The research was deliberately kept as low key as possible in order to avoid such criticisms, but, I agree, it cannot be ruled out that some patients may have been aware of it. However, in the five years of data collection not one patient enquired about the research because they had inadvertently heard about it.

It must also be borne in mind that this study was one of the first to be undertaken in the UK, so the general public were not familiar with this kind of research at the time. The case of Patient 10 occurred prior to the publication of the other smaller prospective study that commenced at the same time as this study (Parnia, Waller, Yeates, & Fenwick, 2001) and the larger study that was published in *The Lancet* (van Lommel et al., 2001).

Rush suggested that knowledge of the research could have influenced future patients. I totally agree; this is a most important point and should always be taken into consideration when planning to undertake future research. The open-ended questionnaire addressed the issue of prior knowledge and asked such questions, as page 347

of my Ph.D. thesis shows (Sartori, 2008). Interestingly, as my thesis described, most patients did not attach significance to their NDEs, nor did they understand them. If they had been influenced by prior knowledge of the research, then I would have expected them to place more emphasis on their experiences and to better contextualize them.

Possible Leakage of Information to Hospital Staff During Pre-Study

Rush also suggested a leak of information due to the pre-study activity of constructing cards for use with the veridical aspect of the study. He stated: "They asked fifty staff and visitors what was on a set of test cards and then excluded use of cards that were guessed correctly." This description is slightly incorrect. I want to clarify that there were no possible correct or incorrect guesses, as there were no test cards at this point in the research process. In preparation for the study, I asked the 50 people to guess what images they would *expect* to see if they were out of their bodies looking down on the situation from above. The images that they said they would expect to see were then listed and avoided when I constructed the cards.

Rush appeared most concerned that the staff and visitors asked to guess what images they would expect to see could have influenced what patients who reported an ND OBE would report. The reality of the matter was that no one was remotely interested as to why I had asked these questions. In fact, most of the 50 people asked to guess what images I would use were puzzled as to why I would ask such a question. It must also be taken into account that these people were questioned approximately three months before the pilot study and, therefore, approximately eight months before the formal data collection began, enough of a time lapse for the research not to be foremost in people's minds. At no time did I inform these people what images I *would* be using.

However, let's now take into consideration that the pre-study activity actually had influenced some staff with regard to the impending research. None of the 50 staff and visitors were informed of where the images would be located. Even if staff were aware of the location, no one could possibly know what the images were and which images were on which monitor, as they were rotated weekly.

Patients are admitted to ITU due to emergency situations; they don't plan to have a cardiac arrest or to be admitted to ITU. Patients

are usually admitted to ITU from outside hospital and are usually unconscious on admission, and the staff has far greater concerns of undertaking life-saving measures than informing patients of NDE research.

The images used in the pilot study were simple images such as letters, numbers, and line drawings. The images used in the study were of random images and advertisements cut out of magazines and in no way resembled any of the images that were suggested approximately eight months earlier by the 50 people who were asked, when planning the study, to guess which images would be hidden.

Curious Work Colleagues Peeking at the Hidden Images

Rush's point that curious work colleagues could have peeked at the hidden images is very valid but has already been addressed in my Ph.D. thesis (Sartori, 2008) and in a prior publication (Sartori, 2004). The pilot study was undertaken in the summer of 1997 as a trial run to assess for potential oversights in the planning of the study. It is clearly stated on page 136 of my thesis (Sartori, 2008) that one of the things the pilot study elicited was the curiosity of my colleagues. In my absence some of them had reportedly climbed up on ladders to view the hidden images. All of these initial images were then removed, but the ridges that concealed the images were kept in place. The problem of staff curiosity was rectified by speaking to each staff member individually and showing each member the images that had been removed. This situation illustrates yet another difficulty and the sheer hard work involved in conducting such a study!

The formal data collection commenced in January, 1998, when new images were put in place during a night shift while fewer people around. By this time, all staff had already seen the images used in the pilot study, and their initial curiosity had been satisfied, so they did not show the least bit of interest in the images. In fact, I witnessed no attention paid to the images at all after the initial few weeks of the pilot study.

Rush has implied that patients could have been aware of my research due to leakage of information. If this was so and the factors he mentions had such a great influence on the patients, then I would have expected some patients to have reported viewing the hidden image—but none ever did.

Interviewing the Patients in ITU with the Screens Drawn Around

Rush has suggested that it cannot be ruled out that other staff and patients may have overheard the interviews, thereby leading to further influence on patients' experiences and reports. First, I want to respond with an explanation of why we conducted patient interviews at their bedsides. During the first year of data collection, two patients who had reported NDEs died before in-depth interviews could be conducted. It was therefore decided to conduct the in-depth interviews as soon as possible at the bedside in ITU with the screens drawn around. This modification developed according to how the research progressed due to unforeseen factors that emerged and that could not have been predicted in the planning stages.

The circumstances of interviewing the patients in ITU with the screens drawn around is another good point to address, as my response may help to clarify things for people not familiar with the clinical setting. In all of the interviews that I conducted, not once was I aware of any members of staff or other patients overhearing any of the interviews. First of all, the distance between the patients' beds is too great to overhear conversation from the next bed. Each bedside has to be large enough to accommodate a multitude of electrical equipment such as the ventilator, the pump stands to which several intravenous drug pumps are secured, the renal dialysis machine, and traction in the case of patients with multiple fractures. In addition, each bed space is divided by a large double-sided work station that houses necessary equipment such as syringes, needles, intravenous infusion lines, catheterization packs, and bed linens.

Secondly, if a member of staff had been within close proximity, they would have been too busy attending to their own workload and would not have time or impetus to listen to our interview. ITU is a busy, intense environment, and each nurse has one critically ill patient to attend to. The nurse's attention is constantly focused on the patient being cared for; an attending nurse who must, for some reason, leave the bedside may do so only when another nurse steps in for the attending nurse. There is little time to pay attention to other patients due to the demands of caring for one's own critically ill patient. It is not possible for an attending nurse to redirect one's attention to a patient in another bed area in order to listen to an interview, as there is simply no time for any staff members to be sitting around listening to conversations about things that do not concern them.

Furthermore, ITU is a constantly busy and noisy environment; many studies have highlighted elevated noise levels in ITU due to 'white noise' from the electrical equipment, staff conversation, alarms sounding, telephones ringing, and certain procedures carried out routinely such as endotracheal suctioning (Christensen, 2002; McInroy & Edwards, 2002; Sartori, 2008). Such noise levels are not conducive to a staff member or another patient overhearing an interview taking place at another bedside. Thus, although it cannot be entirely ruled out that one or more colleagues overheard a research interview, I consider the likelihood next to impossible.

Exceptional Claims Demand Exceptional Evidence

Rush stated that "exceptional claims demand exceptional evidence" (p. [10]). He appears to have misunderstood the purpose of the article: It was never intended to make 'exceptional claims;' it is merely a case report of a very interesting experience captured during a prospective study—an experience that both I and the reviewers and editors who reviewed the article considered to be not easily explained or explained away.

Interview Technique

With regards to Rush's comment that on page 76 (Sartori et al., 2006) I said, "Did you hear me say I was going to clean your mouth?" rather than asking more open-endedly, "Did you hear me say anything?", I would like to point out that on page 74 of the original article (Sartori et al., 2006) I documented that I had already asked the more open-ended question, "Did you recall hearing anything while in this state?" This point is also documented in my thesis (Sartori, 2008) on page 392 and 395, which clearly shows the order in which I asked the questions.

In interviewing, it is appropriate to first ask a more open-ended question and then, when the interviewee has freely given specific information, to follow up with more closed-ended questions to clarify details. I asked the follow-up question, "Did you hear me say I was going to clean your mouth?" after the patient had already replied to my initial, more open-ended question by describing me cleaning his mouth; thus, his memory of that specific process had been established. On page 395 of my thesis (Sartori, 2008), I specifically stated the rationale of the question in brackets next to the question: "May have

caused him to make a mind model of it.” I was referring specifically to that incident and probing further; I wanted to know if he had picked up auditory cues that could have contributed to a cryptomnesic mind model rather than his report having arisen from veridical perceptions. Of course the patient proceeded to say something about his mouth; it was my intention to specifically explore that aspect.

With regards to my reply about the consultant, when I responded, I was actually confirming to the patient actual events because he did not understand them. I provided this confirmation *after* the patient had given me the necessary information and had already identified the consultant as being the person who examined him. In fairness to Rush, when interviews are written down they are slightly taken out of context; in this case, the transcript did not highlight the puzzled look on the patient’s face or the time gap between portions of my dialogue with him.

The NDE Scale Being Used to Prime Responses

Rush has suggested that administration of the NDE Scale prior to conducting an in-depth interview may have primed the patient’s responses. Having the benefit of undertaking this research in the clinical area, I disagree with Rush’s suggestion that the NDE Scale (Greyson, 1983) be implemented after the open-ended questionnaire. The NDE Scale is a measuring tool. It is a 16-item multiple-choice questionnaire, and its purpose is not verification of events, as Rush has implied, but to establish whether an NDE has occurred and distinguish between an NDE and hallucination. At the time of completing the Scale, the patient had already given a free narrative of his experience. The NDE Scale was not designed to prime responses in anyway. Administering it following the free narrative ensured that a lengthy interview was not performed only to find that when the NDE Scale was administered the patient’s experience didn’t actually fulfill the criteria for being an NDE.

Rush commented that it is unclear if the patient was aware of my research. In the original article (Sartori et al., 2006), under the sub-heading *Did the Patient Construct the NDE to Help the Nurse Who Was Looking After Him?*, I specifically addressed this aspect: “The research had not previously been discussed with the patient, and he had no knowledge that such research was being conducted” (p. 82).

The Patient's Eagerness to Report His Experience Was Because He Knew About the Research

With regards to Rush's suggestion that the patient's eagerness to report the experience could have been because he knew about my research, I'd like to reiterate a point I've already addressed regarding material on page 82 of the original article (Sartori et al., 2006). This was a suggestion I had considered and made a conscious choice to include when writing the article so that readers could be as informed as possible, yet he has tried to turn this point into a criticism. Interestingly, I was not present when he initially reported his NDE to the ward rounds personnel; if he was trying to please me, then surely he would have reported this experience in my presence. One of my research findings was that the NDE was under reported. It is unusual for a patient to report an NDE due to fear of ridicule or disbelief. In fact, only two of the 15 NDErs voluntarily reported their experience. Both of these experiences had such impact on the patients that they were motivated to share their experiences with others. To report such an experience, as Patient 10 did, in an intimidating situation of being examined by the ward rounds personnel, consisting of several doctors, nurses, and physiotherapists, is highly unusual and not characteristic of someone trying to gain attention because he had prior knowledge of research being undertaken.

I thought Rush made a valid point regarding how accuracy of a verbal report can be measured. I was present during the time the patient was unconscious, so it was apparent to me that what the patient reported correlated with actual events and, thus, was accurate. The loss of consciousness and treatment given at the time were also documented by the consultant. The physiotherapist also agreed that the patient had accurately reported the events.

Rush suggested that the ND OBE patient's perceptions of hospital events during his unconsciousness should have been judged by a panel not associated with me. To control for this factor is virtually impossible, as it would have entailed a panel of people; not associated with the research to assess the validity of a report of something to which they were not witness. It must also be taken into consideration that there was no funding for this study, so even if such stipulations made sense, there was no means to finance them. It is one thing to judge something retrospectively and quite another to be present during the emergency situation. To be able to judge the actual emergency situation itself would entail a panel being on-call 24 hours a day, seven

days a week for the duration of the five years of data collection in the hope of an ND OBE occurring during which time they could all pay attention and make notes while the patient was being resuscitated. Again, this issue highlights the infrequency and unpredictability of NDEs that underlies one of the many difficulties in researching them in the clinical area—as well as the perseverance required to sustain such research.

Accurate reporting of events is an essential part of an ITU nurse's role due to the life-and-death situations that patients may be in. Handover to the nurse taking over on the next shift is an extremely important aspect of such a role. It is essential that details of the previous shift are accurately described and verbally reported in order for the appropriate care and treatment to be continued. Constant attention is given to detail through thorough documentation in the nursing notes and observation charts of the patients. In my opinion, ITU nurses' training and daily practice in careful observation should increase rather than decrease speculation that their perceptions and reports are valid.

What is a 'Hit' Testing?

Rush stated that “any ‘hits’ by patients in describing the hidden cards could potentially be taken as evidence, not for a veridical OBE, but for precognition or telepathy” (p. [9]). By ‘hit’ he is referring to correct identification of the hidden target.

Whether a ‘hit’ would be indicative of telepathy, veridicality, or precognition would have to be investigated further. Incidentally, the only person who knew the possible identity of each target was I, but not even I was aware of which target was situated at which location. The purpose of testing the veridical aspect of the ND OBE was to investigate if it is possible that what people have anecdotally reported of leaving their body and viewing the situation from above is replicable or if it is a mind model.

No Formal Assessment of the Hand Prior to the NDE

Rush made a valid point that Patient 10's hand was not assessed while he was in ITU, but, again, this is a point I had already stipulated in the original article (Sartori et al., 2006, p. 82) but one that he has

reinforced and turned into a criticism. It is correct that the hand had not been formerly assessed immediately prior to the NDE. However, the hand had been assessed throughout the patient's life, as the medical diagnosis was documented in the medical notes: a right spastic hemi paresis of his right hand. This is a congenital abnormality that the patient had had for the 60 years of his life leading up to the time of his NDE. He also had a splint in his belongings that had been made several years earlier but the patient felt was ineffective. Such a splint would not have been constructed if such a contracture were not present.

The healed hand remains inexplicable, as there is no known mechanism for how a hand that has permanently shortened tendons due to a spastic hemi paresis from birth has since been able to open fully. This development is something that should not be physiologically possible and something the patient stated he has not been able to do before. This entire matter was also supported by a signed statement from his sister.

In no place in the article did I claim this resolution of the contracture as evidence for anything. I have merely highlighted, "The fact that he was able to open his previously contracted hand defies explanation" (Sartori et al., 2006, p. 83). I am still truly fascinated by this development; if a mechanism was found as to how it occurred, the knowledge could potentially lead to new ways of treating such ailments in other people.

The Study Was a Failure

I am mystified by Rush's conclusion that, "Regarding the results of the study, the main observation is that, strictly speaking, it failed" (p. [10]). I can't understand why he would draw this conclusion. One of the research questions was, "Is the OBE veridical?" I didn't specify that the research would be considered successful only if a patient correctly identified the hidden images. As I've mentioned previously:

If a multicentre study is undertaken there is the capacity to understand the NDE and also a greater potential for verifying the OBE. If hundreds of patients report an OBE there is a greater potential for the symbols to be viewed. Equally, if hundreds of patients report an OBE but none correctly identify the symbols then it could lead to the conclusion that the OBE is a mind model. Either way, the research would be of great importance. (Sartori, 2004, p. 39)

It seems to me that Rush's conclusion that the research was a failure rests on his misunderstanding its original purpose. In a future publication, I will be discussing the complexities of veridicality research specifically relating to the results of this study, which may add further clarity to this matter.

A very clear and precise reflection of an event that occurred while the patient was deeply unconscious was reported. This report was in stark contrast to the thousands of other patients I have nursed while they regained consciousness—a process during which they usually are confused or 'spaced out', are vague for some time before becoming fully reoriented, and have poor recall of events surrounding their unconscious episode. This patient was forthright about an experience that was so significant to him that it motivated him to report it to the intimidating ward rounds personnel immediately upon regaining consciousness.

Consolidating Three Interviews

I understand Rush's criticism of my article containing a consolidation of three different interviews. (There were also the initial notes that I made when the patient first described his experience to the ward rounds personnel that, in retrospect, I should also have included in the original article.) Three lengthy interviews were conducted, and it was not logistically possible for these to be included in full in this article. This point was specifically noted on page 73 of the original article (Sartori et al., 2006), and the interviews are available in full in my published thesis (Sartori, 2008) so that they can be scrutinized and fully assessed. In retrospect, I would have done better to identify which excerpt was from which interview, and I will certainly bear this in mind for future presentations and publications.

What Was Used to Clean the Patient's Mouth

With regards to the patient identifying what was used to clean his mouth, Rush implied that I, rather than Patient 10, first specified this datum. However, his implication is incorrect: The patient came to this point independently. I used a long suction catheter to suction away the mucous secretions from his mouth—which were blood stained and, therefore, pink in color. I then used a pink sponge on a stick that was dipped in water to clean his mouth. Both were used in succession: first the catheter, then the sponge. I still do not know which one it was that

he viewed—it could have been both; I have only reported the patient's testimony. The fact is that I cleaned his mouth with something that was both long and pink. With regards to the lollipop, the fact that the patient had been in ITU and was familiar with procedure was, again, specifically highlighted in the original article (Sartori et al., 2006); yet again in his critique, Rush has reinforced the very point I had made and turned into a criticism.

Again, as I have pointed out in the article, the patient did not accurately report the audible cues; that is, the patient reported the words of the doctor's question incorrectly but reported a good comprehension of the meaning of what the doctor had asked. However, what is interesting and accurate is that the patient correctly identified the consultant as examining him and not the other doctor whom he had seen prior to losing consciousness. The consultant entered ITU after the patient had lost consciousness, examined him while he was unconscious, and then—while the patient was still unconscious—returned to his office until he began the ward rounds.

It is apparent to me that some of the points that Rush is using as criticisms were all addressed in the original article so that readers were aware of these issues. I tried to report this incident as thoroughly as possible so that readers could be as informed as possible when drawing their own conclusions. I have not tried to convince readers of anything; rather, I reported as accurately as I could what I had witnessed. Readers can make up their own minds; all I did was report on a situation in which I was in a unique position of being both witness and researcher at a time when the patient was unconscious and reportedly experiencing an ND OBE. In fact, having studied these experiences in depth for the past 19 years and having undertaken prospective research in the clinical area, I am still unable to formulate firm conclusions about how to explain NDEs.

The Timing of Unconsciousness

I thought Rush made a fair point regarding the period of unconsciousness. On page 72, we (Sartori et al., 2006) stated that the patient regained full consciousness *approximately* 3 hours after the event the patient subsequently reported. However, the actual time period was four hours, as we stated in the same article on page 78. Our reference to three hours was an approximation, whereas our reference to four hours was to stipulate the actual time it took for the patient to regain full consciousness.

However, the crucial time period was the initial 30 minutes when the patient was deeply unconscious. After this time he began to slowly show signs of regaining consciousness, and he became fully responsive four hours later. As it states in the article, after the 30-minute period of deep unconsciousness, the patient began to flicker his eyelids and move all four limbs—signs of neurological improvement and regaining consciousness. An oversight on my behalf is that I thought readers would be able to infer that the patient at this point was slowly regaining consciousness, so I didn't specifically stipulate this information. His blood pressure and heart rate had also stabilized, and the screens were drawn back.

The patient described viewing the physiotherapist poking her head *around the curtains*. The physiotherapist was not there for the whole duration as she had other patients to attend to but she kept intermittently returning to check on the patient's condition during the first thirty minutes by poking her head around the curtains. The curtains were closed for the duration that the patient was deeply unconscious—this was when the physiotherapist was concerned and checking on his condition.

The curtains were open when he began to flicker his eyelids; therefore, the viewing of the physiotherapist could have occurred only while the patient was deeply unconscious. Rush has suggested that the observation of the physiotherapist's behavior was due to drifting in and out of consciousness. At the time the patient was drifting in and out of consciousness, there were no screens around, so the patient could not have viewed the physiotherapist poking her head around the curtains.

Rush commented that unconscious patients can have 'implicit perception' and 'blindsight' during anaesthesia and REM associated with the dreaming state. Psychological and neurological processes were considered in the original article, although reference was not made to the specific processes of implicit perception and blindsight; these processes were generalised as mental reconstructions / mind models. The subheadings *Was His OBE a Mental Reconstruction?*, *Did the NDE Happen as the Patient was Regaining Consciousness?*, and *Did the Patient Construct the NDE to Help the Nurse Who Was Looking After Him?* in particular address these points made by Rush.

The purpose of the research was to investigate NDEs in general, so I'm not sure why Rush has assumed that "the research project was attempting to investigate whether or not consciousness can exist independently of the physical body" (p.13). The possibility of consciousness existing apart from the body is only one aspect of the study. As heal-

ings have been anecdotally reported in other NDE cases, and this was an individual case report, the apparent spontaneous healing of the patient's hand was also of great relevance to this study.

Many patients who are acutely ill develop renal failure and require renal therapy, as Patient 10 did. It is very common for patients in ITU to recover their renal function after having the appropriate treatment. Staff working in this area would be well aware of this phenomenon, so there is nothing remarkable about it. To the patient, this matter was obviously significant, and he retrospectively reported in a follow-up interview that his kidney function had returned after the NDE whereas in fact it had begun to improve before the NDE.

However, it is highly unusual for a congenital spastic hemi paresis to spontaneously resolve. This aspect would have been overlooked had the patient not misunderstood my question during the interview. The question was:

PENNY: When you were in this state and not in your body, were there things you could do that you can't in your physical body?

PATIENT: Well, yeah, that's what I mean; when I came back down I could open my hand. [He misinterpreted the question.] This hand has always been strong [left] but this hand [right] used to be like this [fist clenched and contracted under]. All my life, for 60 years, my arm has always been like this; I could never open it. (Sartori, 2008, p. 394, Sartori et al., 2006, p. 77)

At one point, Rush stated, "it is easy to overlook another important aspect in studies such as these" (p. [14]) and then went on to quote excerpts from my thesis where I emphasized this very aspect. Considering that I mentioned it, I did not overlook it, so I'm unsure of his point. This aspect was of no particular relevance to the article. In my overall study, I attempted to conduct as thorough an exploration of NDEs from as many perspectives as possible in order to have a greater understanding of the phenomenon. Again, Rush appears to be under the misconception that it was specifically investigating only veridical aspects of ND OBEs and the possibility of consciousness existing apart from the body and that I was expecting many 'hits' regarding the hidden images.

Veridical Aspects Were Inaccurate

I disagree with Rush's comments that the veridical aspects were not accurate. As I pointed out in the article, the patient was familiar with ITU procedures, so he might have inferred that I used a pink lollipop to clean his mouth. The fact is that I did clean his mouth with something pink while he was unconscious, and he reported viewing this procedure from above. However, I find it hard to reduce the following to circumstantial evidence:

- 1) Correctly identifying the consultant as examining him and not the other doctor he had seen earlier that morning.
- 2) Correctly describing the physiotherapist poking her head around the screens. These actions occurred only while the patient was deeply unconscious. By the time he began flickering his eyes, the screens had been opened.

The events that he reported were actual events that I was witness to as well as participated in, and these occurred at the time the patient was deeply unconscious (during the first 30 minutes).

Also another important aspect of my research is of relevance here. Documented in my thesis (Sartori, 2008, pp. 212–215), I described further investigation of the ND OBE component. To ascertain if the ND OBE could have been inferred from residual sight, hearing, or tactile stimulation, I asked the patients who had been successfully resuscitated but did not report an ND OBE to guess what had been done to revive them. Most of the patients couldn't guess. Of those who did, none of the guesses of this control group were accurate: In every case, there were misconceptions of equipment used and procedures carried out. If ND OBEs are due to mental reconstructions, then I would have expected a few of the control group to have reported fairly accurate resuscitation procedures, but this was not the case.

There is no question that NDEs are a highly complex phenomenon, and I absolutely agree with Rush's point that it is unlikely that there will be a single explanatory mechanism. I have never claimed to have come up with an explanation for NDEs.

Having 17 years experience of nursing unconscious, critically ill patients, I still consider Patient 10's report to be exceptional. Of the thousands of patients I have nursed during recovery from unconsciousness, never before or since has a patient reported events that I was witness to and that occurred while the patient was deeply unconscious. Most patients have no recall of a period of unconsciousness, and if they do

it is usually vague and confusional. In contrast Patient 10 reported events that I had actually participated in while attending to him as he was deeply unconscious. It is highly unusual for a patient to have such clarity of thought and recall following a period of unconsciousness. To infer that such clarity could be produced by a person who is deeply unconscious and whose brain is severely physiologically insulted does not correspond to the current prevailing view of consciousness being a mere by-product of the brain. However, I acknowledge that some people who do not have the experience of working in such an environment may find this a difficult concept to grasp.

It is interesting to note Bruce Greyson's (2007) comment:

Without exception, every report of a large study of NDEs published in a mainstream medical journal has concluded that these phenomena cannot be explained as hallucinations. Such unanimity among scientific researchers is unusual and should tell us something. Why is it that scientists who have done the most near-death research believe the mind is not exclusively housed in the brain, whereas those who regard NDEs as hallucinations by and large have not conducted any studies of the phenomena at all? (p. 140)

As was concluded in the original article (Sartori et al., 2006), "This interesting case history was elicited from one small prospective study, conducted in one hospital. Further prospective research on a much larger scale is warranted in order to provide a wider understanding of the NDE and, indeed, consciousness" (p. 83). I did not claim that my study alone would warrant a new understanding of consciousness; all it can do is point future researchers in the direction of further understanding.

Closing Comments

In my view, the most valid criticisms Rush made concerned how I presented my study in the article rather than what my actual methodology was. The majority of the methodological concerns he raised had already been addressed in my thesis. As I see it, Rush took the points that I had made so that readers could be as informed as possible when drawing their own conclusions, he affirmed their validity, and then he turned them into criticisms.

My research was one of the first of its kind, and as with many new research studies, it is not flawless, and I have never claimed it to be so. It has provided valuable information and is a platform for future research. I have never claimed exceptional evidence for anything; that

is an interpretation that Rush seems to have taken on board himself. All I have done is reported on how I conducted the study and what my findings were. I have not been trying to prove or disprove anything. All I have attempted to do is get a greater understanding of a highly complex phenomenon by researching it prospectively.

Undertaking this kind of research in the clinical area is laden with obstacles and confounding variables that are easy to spot in retrospect but have to be experienced before they can be learned from. It is hoped that future researchers will build on this study and also take into consideration the few valid points that Rush has raised. Perhaps the greatest strength of Rush's article is that it has highlighted just how difficult it is to undertake and sustain such a study in the clinical area.

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