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Characteristics of memories for near-death experiences

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ABSTRACT

Near-death experiences are vivid, life-changing experiences occurring to people who come close to death. Because some of their features, such as enhanced cognition despite compromised brain function, challenge our understanding of the mind-brain relationship, the question arises whether near-death experiences are imagined rather than real events. We administered the Memory Characteristics Questionnaire to 122 survivors of a close brush with death who reported near-death experiences. Participants completed Memory Characteristics Questionnaires for three different memories: that of their near-death experience, that of a real event around the same time, and that of an event they had imagined around the same time. The Memory Characteristics Questionnaire score was higher for the memory of the near-death experience than for that of the real event, which in turn was higher than that of the imagined event. These data suggest that memories of near-death experiences are recalled as "realer" than real events or imagined events.

1. Introduction

Near-death experiences are generally understood to be the unusual, often vivid, and sometimes profoundly life-changing experiences occurring to people who have been physiologically close to death, as in cardiac arrest, or psychologically close to death, as in accidents or illnesses in which they feared they would die (Holden, Greyson, & James, 2009). This phenomenon has been described as early as Plato's *Republic*, the Bible, the *Egyptian Book of the Dead*, and the *Tibetan Book of the Dead* (Holden et al., 2009), and has been increasingly studied over the past 40 years since Moody (1975) popularized the term *near-death experience* and the acronym *NDE*. The incidence of near-death experiences, across prospective studies in four countries, has averaged 17% when measured with a standardized instrument (van Lommel, 2010; Zingrone & Alvarado, 2009). The frequency of NDEs may be increasing with advances in resuscitation techniques, with an estimated nine million people in the US having experienced an NDE (van Lommel, 2010); and these figures may be underestimates due to the reluctance of people to report them (Holden et al., 2009). Given the increasing incidence of NDEs and their potential contribution to our understanding of consciousness, their relevance cannot be understated nor should it be ignored.

Despite the increase in incidence and interest in NDEs, we are far from understanding their etiology. This is not to suggest that research thus far has been uninformative. In fact, many questions about the phenomenology of NDEs have been answered, such as the situations that most often precipitate them, their common features, and their after-effects (Holden et al., 2009). NDEs have been reported in association with life-threatening events during surgery, childbirth, cardiac arrest, accidents, and suicide attempts; but there have also been reports of NDEs, or of features commonly seen in NDEs, when there

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is no threat of death, such as in deep meditation, during a close relative's death, and the use of drugs such as ketamine (Wilkins, Girard, & Cheyne, 2011).

Some of the most common phenomenological features include a sense of being outside the physical body, intense feelings of love and peace, an experience of meeting deceased loved ones, entering a tunnel structure leading to a bright light, and reliving one's entire life in a panoramic-like experience (Moody, 1975). Many of these features typically occur together as components of a discrete near-death experience, but others, such as the life review, may occur in other circumstances without the other NDE features (Katz, Saadon-Grosman, & Arzy, 2017). Although NDEs are usually accompanied by pleasant feelings such as peacefulness, bliss, and joy, a minority of near-death experiencers, including those with brainstem lesions, describe less pleasant feelings (Charland-Verville, Lugo, Jourdan, Donneau, & Laureys, 2015).

Near-death experiences are often transformational and life-changing. Longitudinal studies over a period of 2 and 8 years have shown that these transformational effects are sustained and may intensify over the years (van Lommel, 2010). Some of the most characteristic changes after NDEs include loss of fear of death; strengthened belief in life after death; a new sense of purpose; heightened self-esteem; increased compassion and love for others; lessened concern for material gain, recognition, or status; greater desire to serve others; increased ability to express feelings; and greater appreciation of, and zest for, life (Noyes, Fenwick, Holden, & Christian, 2009).

The search for the causes and mechanisms of NDEs has been confounded both by methodological limitations and by our limited understanding of the relationship between the brain and consciousness. Several models, both physiological and psychological, have been proposed for the origin of NDEs. Some of the most common theories include hypoxia, hypercarbia, effects of endogenous neurochemicals such as endorphins, temporal lobe excitation, REM intrusion, personality disorders, hypnotizability or suggestibility, expectation, and depersonalization; but no explanation to date has fully encompassed all aspects of NDEs or their effects (Greyson, Kelly, & Kelly, 2009).

In response to the challenge near-death experiences present to our understanding of the relationship between brain and mind (Greyson et al., 2009: van Lommel, van Wees, Meyers, & Elfferich, 2001), some have suggested that NDEs are not real but rather imagined experiences, at least in part (Blackmore, 1996; French, 2001, 2003). French and Wilson (2006) described experimental evidence that memories for anomalous experiences created in the laboratory may be influenced by manipulation, such as by verbal suggestion before the event, exposure to misleading information after the event, and demand characteristics of the experimental setting. It is unclear what relevance, if any, such experimental manipulations may have for memories of spontaneous experiences outside the laboratory.

However, several factors commonly associated with near-death experiences may cast doubt on the reliability of memories of the event: (1) NDEs often occur in the presence of cardiac arrest, which often produces some amnesia for the event (Parnia, Spearpoint, & Fenwick, 2007); (2) they may occur under the influence of potentially psychoactive medications, which can alter memories (Curran, 2000); (3) they usually occur in traumatic situations, which are known to influence the accuracy of memory (Schooler & Eich, 2000); (4) they are usually associated with strong positive emotion, which may influence memory (Schaefer & Philippot, 2005); and (5) they are sometimes reported long after the event, a factor that has been shown to reduce the detail and vividness of memories (Talamini & Goree, 2012).

All of these factors have raised questions about the reliability of memories of near-death experiences. In contrast to these reasons to question the reliability of NDE memories, near-death experiencers themselves usually harbor no doubts at all. In fact, it is the norm for near-death experiencers to describe the NDE as "realer than real" or "more real than anything else I've ever experienced" (Greyson, 2014).

Considerable research has focused on differentiating memories of perceived events from memories of imagined events (French & Wilson, 2006). Johnson and colleagues developed the Memory Characteristics Questionnaire to assess the reality monitoring of autobiographical memories, which is the ability to differentiate memories of perceived versus imagined events (Johnson, Foley, Suengas, & Raye, 1988). Johnson et al. (1988) demonstrated that memories of real events contained more perceptual information such as color and sound, more contextual information such as recall of the surrounding time and place, and more meaningful supporting detail such as emotional information, than did memories of imagined events. Later studies corroborated that memories of perceived events are more likely than memories of imagined ones to have richer perceptual detail, more contextual detail (surrounding temporal and spatial information), less information about prior cognitive operations suggesting generation of the memory, and fewer elements that are bizarre or conflict with other knowledge (Johnson, 2006; Johnson et al., 1988; McGinnis & Roberts, 1996; Suengas & Johnson, 1988; Takahashi & Shimizu, 2007).

In an effort to explore the reality monitoring of memories of near-death experiences, two recent studies have examined the characteristics of NDE memories, compared to memories of perceived and imagined events, using a 15-item abridged version of the MCQ. Both studies concluded that memories of NDEs were more similar to memories of real experiences than to memories of imagined events. Thonnard et al. (2013) used the 15-item modified version of the MCQ to evaluate and compare memories among four groups: 8 coma survivors who reported near-death experiences; 6 coma survivors who reported coma-related experiences that did not include NDEs; 7 coma survivors who reported no memory of the coma; and 18 healthy volunteers. They found that memories of NDEs had more characteristics of memories of real events, such as clarity and self-referential and emotional information, than did memories of imagined events.

Palmieri et al. (2014) also used the 15-item modified version of the MCQ to compare the characteristics of NDE memories with memories of both real and imagined events in a sample of 10 near-death experiencers and 10 comparison participants without NDEs. They also attempted to enhance memories through hypnosis, and they recorded EEGs to evaluate associated neural markers of these memories. Like Thonnard et al. (2013), they reported that NDE memories were significantly different