

NEAR-DEATH EXPERIENCES' MAIN FEATURES: A RETROSPECTIVE ANALYSIS



Charland-Verville V¹, Jourdan JP², Thonnard M¹, Brédart S³, Laureys S¹, Vanhauzenhuysse A¹

¹ Coma Science Group, Cyclotron Research Center, University of Liège, Liège, Belgium

² IANDS France- International Association For Near Death Studies, Oraison, France

³ Department of Psychology: Cognition and Behavior, University of Liège, Liège, Belgium



BACKGROUND

Near-death experiences (NDEs) are profound psychological events occurring when people are close to death, perceive themselves as such, or experience a critical situation that could result in death. The experiences are usually very short but have life-changing consequences. Most of the time, those who have had such an experience are no longer afraid of death and show more positive attitudes toward life.

Despite their different ways of occurrence, NDE have mostly been studied in patients with cardiac arrest. Since NDEs may elucidate brain mechanisms in an altered state of consciousness, they have been the focus of considerable scientific research over the past two decades. The neurosciences suggest that many functional and neural mechanisms are involved in the generation of the wide range of the experience. These mechanisms include mainly visual, vestibular, multisensory, memory, and motor mechanisms.

To date, scientific findings have failed to identify their causes. The science of NDE now focuses on identifying the neural correlates of the most commonly reported features. Although the neural mechanisms of many illusions and hallucinations have been described in detail, there are – at this stage – not even preliminary data on the neurology of the different phenomena associated with NDEs. We first review here the most frequently reported features in retrospective NDE. Next, we propose a review the recent neuroscience hypotheses on their possible neural correlates.

METHODS

MATERIAL

We retrospectively conduct a structured interview with individuals who have experienced a NDE. To identify the experiencers, we used the Greyson's NDE scale [1], a validated and standardized 16-item questionnaire assessing NDE core components measuring the depth of the experience.

The items are further subdivided into 4 psychologically meaningful clusters of specific processes: cognitive, affective, paranormal, and transcendental features. According to the scale, individuals scoring 7 or higher on a maximum of 32 are considered to be NDE experiencers.

POPULATION

The sample included 58 NDE experiencers: 30 female; mean age at the time of NDE: 31±15 years, range = 6-69; time since NDE: 19±13 years, range = 7 weeks-51 years; 14 trauma; 44 non-trauma with 20 anoxic.

STATISTICAL ANALYSIS

Statistical analyses were performed with the SPSS© software version 12.0 (SPSS Inc., Chicago, IL).

This study was approved by the Ethics Committee of the Medical School and Psychology Faculty of the University of Liège.

RESULTS

According to the Greyson's NDE scale, the **most represented cluster** is the **affective** one with 70% of the sample. It is followed by the **transcendental** (52%), **cognitive** (44%) and **paranormal** (42%) ones.

The **most reported feature** of each clusters were:

- Feeling of peace/well-being **88%** (Affective)
- Altered time perception **72%** (Cognitive)
- Entering an unfamiliar world **70%** (Transcendental)
- Out-of-Body Experience **50%** (Paranormal)

The **less reported feature** of each clusters were:

- Bright light **59%** (Affective)
- Encounter with deceased/religious spirits **26%** (Transcendental)
- Seeing the future **19%** (Paranormal)
- Life review/past flashbacks **17%** (Cognitive)

Figure 1
Clinical death (cardiac arrest) ≠ brain death [2]

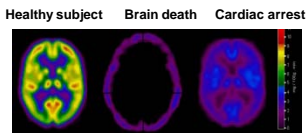


Table 1
Potential neurological mechanisms and neural correlates associated with NDE features.

Phenomenology	Neural correlates	References
Feeling of peace/well-being	Anterior cingulate cortex, limbic system & insula	Damasio et al., 2000
Altered time perception	Basal ganglia & left hemisphere	Teki et al., 2011 Picard & Craig, 2009
Out-of-Body Experience	Right temporoparietal junction	De Ridder et al., 2007 Blanke et al., 2004 Blanke et al., 2002
Bright light/ surrounding darkness	Bilateral occipital cortex & optic radiation	Ammermann et al., 2007 Els et al., 2004
Encounter with deceased/religious spirits	Left temporoparietal junction	Arzy et al., 2006 Brugger et al., 1996
Life review/past flashbacks	Hippocampus	Bancaud et al., 1994 Gloor, 1990

CONCLUSIONS & FUTURE PERSPECTIVES

- We showed that the characteristics of NDE described in the literature are reported by all of our patients.
- Moreover, as observed in previous van Lommel's [3] and Greyson's [4] studies, positive feelings are experienced by the majority while the life review is one of the least reported features.
- We believe that neurological and neuropsychological data as well as EEG and neuroimaging data in more cardiac arrest and other etiologies patients with NDEs will be crucial in describing eventually some of the neurocognitive mechanisms of NDEs.
- Finally, a thorough examination of experiencers' testimonials could lead to a better characterization of the main features and to the development of a new standard NDE scale.

REFERENCES

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Poster number: