

Near-Death Experiences reflected in Medical Research

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Since the mid-1970s research into near death experiences (NDE) has become ever more methodical. However, accounts of experiences with and without verifiable memories are still predominant. But increasingly scientists more often try to approach the phenomenon in experimental studies; these are often people who have had a primarily very sceptic attitude towards such experiences. This applies mainly when such disclosed experiences are considered as being real.

All statistical studies have shown so far that NDEs occur relatively often and that practically all people concerned (or endowed) are convinced that they have experienced something utterly realistic. In many cases the experience changes their lives dramatically later on and very nearly all of them lose the fear of their own death which will inevitable occur sooner or later.

In medicine and natural science it is still an incontestable doctrine that whoever dies is dead – that is definite, no ifs or buts!

An article dealing with an out-of-body experience (OBE) published in the renowned magazine "*Nature*" by the Swiss neurologist Olaf Blanke caused a sensation at the time and even after so many years it still dominates the respective media today. In 2002 he published a case study in which he claimed that electrical stimulation of the brain could trigger out-of-body experiences. Furthermore, he also claimed that they occur spontaneously in the case of certain diseases such as epilepsy.¹ Blanke reported on a patient who saw a blurred image of herself but she could only see the lower part of her body and her legs. She also talked about visual distortions: her legs had become shorter and they were moving towards her face. People with a near-death experience and an OBE are unlikely to recognise their own experiences in such a narrative. In fact, people with a near-death experience nearly always perceive themselves as being fully orientated. Their thinking is clearer than usual (80%).² Objects and persons of the "world left behind" are always seen as an authentic whole and they are never seen as distorted or just in parts.

Between 2009 and 2013 numerous scientists have published studies concerning the measurements of brain waves taken by means of electroencephalography (EEG).

In 2009 a group of scientists in the USA already established in seven dying patients that their brain activity significantly increased for a short time *shortly before their death*.³ Their team leader Dr. L. Chawla interpreted this discovery as follows: "All neurons in the brain are interconnected. If they are deprived of oxygen they lose their ability to generate currents. If the blood flow stops all neurons emit very nearly simultaneously amplified signals resulting in a kind of domino effect. This could explain the increased brain activity." Further similar studies followed, e.g. by Auyong (2010)⁴ and Tononi (2012)⁵.

In 2013 a US American group of researchers headed by Borjigin published that they had been able to detect sudden brain activities in nine rats after their experimentally induced death.⁶ EEGs were recorded for 90 minutes, initially while they were still awake, then under general anaesthesia (60 minutes) and finally after their cardiac arrest (30 minutes). The EEGs were taken above the forehead, on the crown and on the back of the head and each time on both sides of the head. As expected there was a sudden decrease of brain activity down to zero after the cardiac arrest.

However, on closer examination of the current waves it was detected that approximately 10 seconds after the cardiac arrest a sudden completely unexpected "surge of brain activity" in the frequency range of gamma waves occurred for about 20 seconds. Moreover, these brain waves were detectable simultaneously under all electrodes and they were absolutely coherent. The authors pointed out explicitly that the waveforms of the current waves were thus precisely coordinated and corresponded with the activities a brain shows in a conscious waking state at the highest level of concentration. The US-American neurosurgeon George Mashour remarks: "Many electrical characteristics of consciousness (thereby) even exceeded the values measured in full wakefulness".⁷ In their article the authors themselves emphasise, therefore, the resemblance with the "great lucidity and an '(even) more real than real' spiritual experience reported by near-death experienced people."

Although these experiments were carried out on rats, the results were extrapolated directly to near-death experiences of humans and they were rated as a physiological explanation for the occurrence of NDEs in humans. Evolutionary biologists like to interpret such NDEs as some kind of physiological farewell gift of nature to the dying. However, such an explanation is rather absurd: An NDE is supposed to take away the fear of death at the last moment. Those who survived their impending death could then tell their relatives and society about it. The belief in "the beyond" would spread among the people and that would calm them and in a roundabout way thus also serve the preservation of the species.

In this way evolution would make amends for having developed abstract thinking and consciousness in humans which also includes the conscious realisation that they must die.

I do not plan to discuss this, in my view, completely ludicrous pattern of thought here any further. The actual results of this study are far more important and in my opinion they should be followed up in a more subtle way.

1) First of all it must be pointed out that the "flashing" or "blinking" of individual brain areas under magnetic resonance tomography (MRT) always indicates that this special brain area is involved in a process. However, we cannot at all conclude that this process originates in this brain area. Furthermore, we cannot possibly draw any conclusions about the quality of this "physiological flashing" and what its content means to the respective being, animal or human.

Nor can we conclude from the choice of colour in a section of a picture what the entire picture is like or even what effect it might have on the respective viewer.

2) Although I believe that similar activity patterns occur on the threshold of death or shortly thereafter not only in rats but also in humans alike, I think we should ask what kind of NDE rats could have and what the evolutionary explanation would be if we wanted to associate such suddenly increased brain activities with near-death experiences and explain this phenomenon from an evolutionary point of view.

3) First of all, it is difficult to explain why any glimmering "light" somewhere in the brain is completely extinguished due to the breakdown of all electrical brain activities before it suddenly lights up again on a massive scale and completely coordinated for a short period of time everywhere simultaneously. And this without being able to offer any better and more comprehensive explanation for this phenomenon than the authors have to offer here. Metaphorically this would be the equivalent of an extreme bright night sky over all larger cities of Europe although shortly before all power stations had been switched off completely.

In numerous books⁸ I have demonstrated in detail that the entire world probably consists of "two polar-symmetrical basic worlds" which are interdependent and mutually energise each other and part of one is always also contained in the other. For me, this "symbiotic relationship" is best and in the most beautiful way depicted in the ancient Chinese symbol of Yin and Yang. One of these worlds is the "physical world" which we perceive with our senses. The other is the "informational world" which we also experience continuously but not sensuously. Everything "physical" is only the "exterior view" of the "informational world" which is inherent in the physical one. And yet, the "informational world" should not automatically be considered to be the equivalent to "consciousness" as some authors are too hasty to do. On the contrary, "consciousness" is merely an already further developed part of the "informational world":

The physical world matures and differentiates to ever greater complexity in the same way as the "informational world", which is inherent in the physical world, matures and differentiates into ever more complex "clusters". When such an information cluster reaches a certain higher level of maturity we speak of "consciousness".

If this be the case, then there must also be numerous "interfaces" between these two basic worlds which are simultaneously two sides of one and the same coin.

I believe that our brain is one of many such interfaces: Here peripheral perceptions, e.g. sensory experiences, are constantly transformed into expanded consciousness in the same way as does vice versa a decoding of information into electrically and afterwards also chemically manifested patterns of brain waves. This seems to me to be a very plausible explanation for various special electrical activity patterns which can repeatedly be generated by certain thoughts or world views, this also includes for example "faith", "meditation", "prayer" or certain hypnosis techniques, and which can then be determined by using technical measuring equipment and thus verified.

Death is, in my opinion, a further interface where the brain must naturally be of key importance. In reverse of the decoding of information which is detected as special electrical patterns of brain activity, some kind of encoding of still existing "physical" patterns of brain waves could occur which are then integrated into an already existing "complex information cluster".

We see a similar process in the so-called "piezoelectric effect": A quartz crystal or other kind of crystal can convert mechanical energy into electrical energy and vice versa electrical energy into mechanical energy. The latter is daily practice in ultrasound therapy in any physiotherapeutic or orthopaedic surgery. Therefore, we should recognise these sudden currents in the brain occurring shortly after death, which are proven to be so coherent, coordinated and evenly distributed over the entire brain in an unusual quality, as some kind

of biochemically induced backup. In this process the "physical" brain probably plays a significant role by initiating this recoding and assisting the process. All contents still "stored" in the brain or outsourced for example to fasciae are thus transferred into the complex coexisting "information cluster" which has been there all along. Hence this cluster represents the entire organism which has just died or is in the process of dying in another parallel world which we are unable to perceive with our senses. In religious terms this can best be characterised as "soul". This process must apply to every living being, of course, to rats as well as to humans.

However, the "informational level of quality" is much higher in humans since they already have "consciousness" (on a higher level) and undoubtedly "self-conscious clarity" with the ability of "abstract thinking and associating".

Thus the research results of Borjigin and his team and those of other researchers are probably better suited to support the notion of the "mental survival" of death than the converse materialistic-reductionist opinion according to which our death is the ultimate end and NDEs are the final gift produced in the brain.

A completely different experiment also tries to convince us that our "Self" or our "personality" is a mere illusion which our brain tricks us into believing.

Neuroscientists at the *Karolinska Institute* in Stockholm think they proved in a new experiment carried out in 2015 that an out-of-body experience (OBE) is nothing but a product of the brain and thus a special form of hallucination.⁹ Of course, they do not refer to confirmed OBEs where people underwent experiences beyond their usual horizon of experiences and which could later be verified. So these OBEs must have been real.

For their study they placed 15 healthy test persons under a brain scanner. They all had display screens firmly attached to their heads. On this display they saw a dummy lying on an examination table which was placed next to the MRI scanner and they had the impression they were looking down on themselves. At the same time, in the background, they saw themselves lying in the MRI, but they could only see the lower part of their bodies. They were thus tricked into believing that they saw not the dummy but themselves lying there. Then both their real body in the MRI and the dummy were touched simultaneously and later even threatened with sharp instruments. It was established that the test persons were deluded into thinking that the dummy was their real body and the researchers classified this as being the equivalent to the feeling of experiencing an OBE. The brain scan soon showed special activity patterns in the parietal lobes which did not even alter when the lying dummy was moved around the room. Patterns were found which corresponded with the method and seriousness of the "threat to the dummy" which allowed drawing respective conclusions.

Of course, the researchers concluded once again that the brain produces an illusion of a "Self" in special regions and that, therefore, any OBE is a mere illusion due to the action of an entirely independent brain.

I feel that I have to contradict this as well, since it is a well-known fact, at least for people who like to visit fairgrounds, that we can easily be deceived by special tricks of various kinds, especially when they do not comply at all with our familiar patterns of everyday experiences as it might happen in a flight simulator for example. This is absolutely necessary since it seems that this is an evolutionary precondition which helps us to manage our lives thereby enabling us to recognise and assess everyday situations correctly. Apart from rare, location-related mirages in our usual environment we do not encounter such subtle delusions as seen in conjuring tricks. However, this is exactly the nature of this study. It provokes an illusion

like an accomplished conjurer. Brain regions preformed in the course of brain development start "flashing", of course, because they are involved in it, not, however, because they produce it.

Far more interesting would have been an indication of the time it took the test persons to figure out the whole charade and for their brain activities to be altered again.

Finally, I would like to discuss to the multi-centric AWARE-study (AWAREness during RESuscitation)¹⁰, which was conducted under the supervision of *Sam Parnia, University of New York, USA*, and which was associated with great expectations at the time. This study dealt with perceptions made during a cardiac arrest. 25 clinics worldwide took part in this study.

In each of these clinics 50 to 100 shelves were placed high on the walls of rooms in which resuscitations would most likely take place (e.g. emergency rooms in intensive care units, etc.). On each of these shelves pictures were placed in such a way that they could only be seen from high above. In the case of an "out-of-body experience" (OBE), it was hoped that the respective person would see the pictures and could later describe them. Out of 330 successfully resuscitated patients 101 could later be interviewed. 55 of them had had individual experiences as described by people who have had an NDE, a total of 7 had had a complex NDE, at least one of which had a later verifiable experience. However, none of the patients could later remember any one of the pictures on the shelves. Thus the study did not fulfil the expectations which had been placed in it.

One of the problems with this AWARE-study was probably its set-up. The fact alone that 78% of all resuscitations were carried out in rooms without any shelves with pictures on them should meet with some head-shaking. Furthermore, by using very simple tricks it is possible to prove that people possess a very selective perception. It is rather unlikely that a person in such an extreme situation as a near-death experience focusses on irrelevant pictures fixed in some emergency rooms. These pictures were nothing else but simple geometrical shapes like circles, triangles and squares. Of course, they could have been perceived incidentally in the same way as some people with near-death experiences notice something insignificant and remembered it later. This may now and then be taken as a typical indication of a real experience. However, to demand this prospectively in a scientific study fails completely to take into account the reality of the selective perception of humans. Since even here verifiable experiences occurred, this study undermines the argument that consciousness is inextricably connected to the brain function, despite the limitations mentioned above. Therefore, I would like to draw your attention to the study carried out under the supervision of my colleague *van Lommel* in The Netherlands and published in the magazine *Lancet* in 2001:¹¹ In this study it was established that of 344 resuscitated patients in 10 Dutch clinics, 62 (18%) had an NDE, of which 41 (12%) even had a complex NDE. Neither the duration of the cardiac arrest, nor the duration of unconsciousness or perhaps the duration of a possible subsequent week-long coma, nor the type and quality of the highly technical medical equipment required for the resuscitation did in any way influence the number of occurring NDEs. There was also no connection detectable to the duration of oxygen deficiency, to the type and amount of medication administered, to the patient's personal attitude towards death or to an existing fear of it or even to a possible previous knowledge of NDE cases from literature. All such factors were explicitly excluded in van Lommel's study. In contrast to the more recent AWARE study by Parnia 25% of the Dutch patients had an OBE, several of them with elements of perception which were verifiable later. Although even then previously

hidden objects had not been perceived, we have to take into account that, in contrast to the AWARE-study, the time lapse between the cardiac arrest of the patients and the study was in some cases up to 8 years.

Conclusion: There is still no evidence that near-death experiences are the product of our brain. For certain parts of complex NDEs physiological explanations might not be wrong. They should also be taken into account just as much as tone sequences or frequency patterns, rhythm and chords of music are the physical basis of a symphony.

However, the artwork "symphony" and the impressions inseparably connected with it cannot thus be described, just as the depth and the quality of single elements of NDEs cannot be described, let alone their worldwide similar patterns, their complexity and the spiritual contents always associated with them and the effects they have on the later lives of people who experience them.

Near-death experiences seem to be an interface in the same way as the brain probably is or the smallest particle of light, the photon, might be. NDEs seem to be an interface between the world which we perceive as being physical since all our senses function in the same way, and a world behind all this or a world which is within everything and which we can term "informational world", "spiritual level" or even "the land of souls" although the last two terms as well as the term "consciousness" will probably always remain to be a mere partial aspect of the greater whole. "Informational world" may sound too mundane for many people but it is certainly far more comprehensive.

And thus the near-death experience can also be considered to be an interface between the mysteries of life and death. Since life itself seems to be a *non-physical substratum* but rather a partial aspect of the "informational", virtually a force which moves "the spiritual" or – again expressed more comprehensively – an "informational cluster", life can never be destroyed by death.

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