

Review Article

Transformation or Pathology: A Brief Review of Studies of Some Anomalous Human Experiences

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ABSTRACT

The paper provides a brief review of the literature, including a case study, of anomalous human experiences (AHEs) such as glossolalia, xenolalia, out-of-body experiences (OBEs) and near-death experiences (NDEs). AHEs are frequently experienced by a number of the healthy as well as the pathological population. The first part of the paper looks at the literature describing phenomenology as well as semiology of the AHEs and their common features. The second part looks at the literature reflecting possible transformative and transcendent elements of the AHEs. The last part of the paper examines the literature presenting the possible pathological as well as spiritual nature of AHEs.

Keywords: Anomalous human experiences, glossolalia, xenolalia, out-of-body experiences, near-death experiences, transformative potential, pathology.

1. Glossolalia

Glossolalia, defined as the gift of speaking in languages, has been around since Biblical times: “He who speaks tongues builds himself...”; (1Cor 14:4); “For anyone who speaks in a tongue does not speak to people but to God.” (1Cor 14:2). Glossolalia is considered to be a practice in which individuals are able to speak in languages unknown to them. It is mostly practiced in Pentecostal and Charismatic Christianity. The phenomenon of glossolalia remains elusive and is poorly understood by contemporary science. Glossolalia is generally defined as a form of language lacking a semantic context. This type of language usually consists of vowels that have a clear audio form, but do not make sense (Samarin, 1972)¹. Goodman (1969)² describes glossolalia as a non-communicative behavior in the form of vocalization, caused, among other things, by a dissociative state, which can be identified with a trance.

According to Hine (1969)³, hypotheses that try to explain glossolalia simply as pathological, or the result of hypnosis, are inadequate. Glossolalia was examined for the first time in greater detail from the point of view of neural correlates by the study conducted by Newberg *et. al.* (2006)⁴. In the study, the SPECT method was applied to the subject’s brain while they were practicing glossolalia. The results of the study showed that during the time the subject spoke in languages, the anterior parts of the brain (which are responsible for cognitive processes such as perception, retention, but also emotional perception, moral issues, empathy, and control of the self) decreased their activity.

Conversely, brain activity increased in the thalamus. Newberg *et. al.*’s study did not determine which part of the brain played a leading role during individual encounters of glossolalia. The parts of the brain that showed decreased activity during glossolalia, as reported by the study of Newberg *et. al.* (2006)⁴, conversely showed increased activity during

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prayers and contemplations of Carmelite nuns in a separate study, conducted by Beauregard & Paquette (2006)⁵. During the prayers of the nuns, both the orbitofrontal as well as the frontal cortex of the brain were activated. The orbitofrontal cortex, among others, plays a role in cognitive decision-making processes. Interestingly, this may imply that the nuns, despite the fact that they were in a heightened state of relaxation with decreased sensory perception typical for praying and contemplation, were still able to engage in a range of cognitive processes typical for thinking.

Cognitive processing usually takes place in the front parts of the brain. It may be hypothesized that glossolalia and prayer/contemplation are activities of a similar nature, since both are states of a highly contemplative spiritual nature and can be further characterized by the reduction of response to external stimuli. Depending on the level of intensity achieved during those states, they both could further be characterized as experiences of anomalous perception, mystical or religious. So, it is interesting to find out that the separate studies of Newberg et al. (2006)⁴ and Beauregard & Paquette (2006)⁵ reported brain activity of opposite nature, detected in the same parts of the brain, happening during very similar activities. The challenging results of the studies pointing to the fact that during glossolalia the activity in the front part of the brain of the subject was reduced while, on the contrary, during prayer/contemplation it was increased should be subjected to further study.

Another study examining glossolalia was conducted by Persinger (1984)⁶. It revealed interesting EEG activity in separate cases of glossolalia and transcendental meditation. The study reported a presence of delta activity in the temporal lobe occurring during transcendental meditation, which lasted about 10 seconds. The second case detected sharp wave activity in the temporal lobe of an individual who was practicing glossolalia when the measurements were taken. Both cases were representative of healthy individuals without prior history of pathology. Based on the results of the study, Persinger suggested that mystical and religious experiences, including glossolalia, occur naturally in the temporal lobe and are transient in nature. In addition, Kavan's study (2004)⁷ described the prevalence of altered states of consciousness among glossolalists, and compared it to the experiences of glossolalia among meditators belonging to a New Zealand based yoga group. The study revealed that the majority of glossolalists experienced altered states not during glossolalia, but during the baptism of the Spirit. Interestingly, the study also found that the group of meditators experienced altered states of consciousness while practicing meditations more often than the glossolalists did during their practice of glossolalia. A study by Lynn et al. (2011)⁸ revealed that glossolalia may further display some traits of a dissociative state of consciousness, similar to a trance, during which awareness of the self seems to be impaired.

Moreover, the study concludes that glossolalia may also cause decreased proprioceptive perception of the individual within the frontal and parietal lobes during the practice of glossolalia.

The case of xenolalia (also referred to as xenoglossia or xenoglossy)

Biblical glossolalia, or the gift of speaking in languages, is a phenomenon in which people speak in languages that are unknown to them, and which are not included amongst officially existing languages. For this reason, a distinction should be made between "glossolalia" and "xenolalia" despite the fact that they share common phenomenology as well as semiology. The phenomenon of xenolalia happens when an individual begins to spontaneously speak a language that exists, but the speaker has no prior knowledge of it (Yong, 1998)⁹. On the other

hand, according to Yong (1998), glossolalia being different from xenolalia, represents random verbal utterances. Some neurophysiology studies describe cognitive and neural functions differences between glossolalia and xenolalia (King & Selvendran, 2019)¹⁰. Xenolalia has not been described in many studies mainly because of its infrequent nature.

In 2017, I attended a scientific conference at Yale University, where I presented a speech on out-of-body experiences. What follows is a description of the individual case of a psychiatric patient presented at the conference by Samuel Sandweiss¹¹, an ex-psychiatrist from San Diego, California. His presentation concerned a mentally disabled, Christian patient who suffered from episodes of severe headaches, depression, anxiety, panic attacks, and seizure-like activity. The patient, without having any prior connection to India or Sanskrit (the oldest Indo-Aryan language), suddenly and spontaneously started to speak in Sanskrit. Two experts in Sanskrit examined the material produced by this patient and confirmed its legitimacy. Sandweiss patient provided 14 reports in Sanskrit while under trance. After careful analysis of the reports, Sthaneshwar Timalina, a scientist and an expert in Sanskrit, found that they were actually extracts from the Vedic Revelations - which is a very profound spiritual teaching existing in four different Sanskrit languages. Revelations, identified as pieces of information containing deep wisdom from a high-level spiritual source, have been described in many traditions of the past.

However, the phenomenon of receiving revelation via xenolalia has never been captured in such a convincing way, as in the case of this disabled patient. The instances of each individual case of xenolalia of the patient have been thoroughly recorded and can be said to reveal information profoundly affecting both science and spirituality. Dr. Sandweiss, as well as the members of his team dealing with this rare case of xenolalia, Dr. Timalina and Dr. Lieff, are of the opinion that decrypted material produced by the patient should not be taken lightly. The individual recordings of this case were carefully documented in the video of the patient. They resulted in profound scientific, and remarkably coherent, messages of a highly spiritual nature.

Some clergy are of the opinion that the case of Sandweiss' patient deals more with glossolalia than xenolalia as these two phenomena partially overlap. I had the opportunity to briefly discuss the case with professor Sandweiss at the conference. We agreed that one of the shortcomings of the study was the missing neural correlates of individual instances of the patient's xenolalia. They would have been of great value as they may have revealed which parts of the brain were activated or deactivated during the process of xenolalia. Interestingly, the patient experienced a spontaneous episode of xenolalia after receiving psychiatric treatment for 6 years.

After thorough analysis, Sandweiss and his colleagues came to the conclusion that there is currently no scientific theory that would satisfactorily explain the phenomenon of xenolalia or glossolalia. Indeed, some experts present at the conference opined that the case of the psychiatric patient was a clear case of a spiritual emergency, and that xenolalia should be considered a spiritually transformative experience and/or non-ordinary transformative experience, rather than pathology. Other experts posit xenolalia belongs to non-neurogenic language disorders (Mendez, 2019)¹². According to Yong (1998), pentecostal view of xenolalia defines the phenomenon as a vehicle for transformation. Yong (1998) considers glossolalia a form of divine speech which results in the transformed witness of the glossolalists.

2. Out-of-Body Experiences (OBEs)

OBEs may happen spontaneously or be triggered by an outside stimulus. They are associated with a range of different experiences such as near-death-experiences (NDEs), hypnosis, trance, transcendental meditation, contemplation, praying, cardiac arrests, extreme exercising, or life-threatening situations (Moody, 1975¹³; Twemlow et al., 1982¹⁴; Greyson, 1983¹⁵; Fenwick & Parnia, 2002¹⁶; Twemlow, 1989¹⁷; Greyson, 2007¹⁸; Nelson et al., 2007¹⁹; Braithwaite, 2008²⁰; Greyson, 2014²¹). They may also be linked to epilepsy and ictal autoscopic seizures (Heydrich et al., 2011²²; Hoepner et al., 2013²³). Interestingly, they are also elicited by out-of-body-like experiences, such as body parts distortions, created under virtual reality settings (Blanke et al., 2002²⁴). Other studies associate OBEs with drug use, migraines, as well as anesthesia (Podoll & Robinson, 1999²⁵; Blanke & Bunning, 2005²⁶; Lopez et al., 2006²⁷). Some authors posit that there are differences between OBEs happening naturally, such as those experienced during NDEs, compared to OBEs which are the result of an artificial electrical induction in different parts of the brain (Holden et al., 2006²⁸).

The available literature on out-of-body experiences uses many definitions to describe this phenomenon. Irwin described OBEs as a state of the experiencer during which “the center of consciousness appears, to the experiencer, to temporarily occupy a position which is spatially remote from his/her body” (Irwin, 1985)²⁹. Blackmore suggested OBEs are an experience in which the experiencer “seems to perceive the world from a location outside his physical body” (Blackmore, 1982)³⁰. A study conducted by Messier & Smith (2014)³¹ described the out-of-body experience as an experience which is based on both visual as well as somaesthetic perception in which the physical body, seen from a third person description, is illusory. People experiencing OBEs report that the experience itself feels very real while it is happening (Blanke, Brugger, & Mohr, 2006³²).

OBEs in people with pathological conditions such as epilepsy have been studied by a fair amount of researchers to date. However, according to Sellers (2018)³³, there is a severe lack of studies aimed at researching spontaneous OBEs within non pathological population. The literature reporting on the phenomenon of OBEs agrees on a number of features which usually accompany the phenomenon. The main features of OBEs include sensory perception of floating, a subjective meaningfulness, enhanced reality, as well as a profound feeling of being outside of the body (Messier and Smith (2014)²⁹, Anzellotti et al., 2011³⁴).

As to the most probable cause behind OBE elicitation the literature mainly implicates a disruption in the processing of multisensory integration (Blanke, Landis, Seeck, & Spinelli, 2004³⁵). Some studies suggest OBEs are part of the so-called autoscopic phenomena (Brugger and Regard, 1997)³⁶. It is worth noting that the phenomenology and semiology similar to that described in the studies of glossolalia by Lynn et al. (2011)⁸, Newberg et al. (2006)⁴; Persinger (1984)⁶; and Kavan (2004)⁷ and the presented case of xenolalia, also occur during OBEs. The subject studied by Newberg et al. (2006)⁴, among others, reported no control over the language centers of the brain at the exact time he was experiencing glossolalia. A lack of control over the language centers may also be the reason why an adult out-of-body experiencer (OBER), belonging to the healthy population, reported severe difficulties in both oral and written fluency of English -his mother tongue, while experiencing OBEs (Sellers, 2019)³⁷. The same subject frequently experienced aphasia with disgrammatism, which jointly with xenolalia, some authors (Mendez, 2019)¹¹, consider non-neurogenic language disorders. According to Sellers (2019)³⁶, during his OBEs the OBER further reported the total inability to speak, as if overwhelmed by feelings of ineffability.

The phenomenon of ineffability has been a frequent feature occurring during spiritual transformative experiences (STEs), non-ordinary transcendent experiences (NOTEs), exceptional human experiences (EHEs), extreme mental states, peak experiences, and experiences of the so-called unitive consciousness. Bennet-Hunter (2015)³⁸ posits ineffability should be considered divine, and further claims that ineffability was ignored by philosophers in their writings, despite the fact that it was found in experiences of Christian mystics. In addition, Newberg et al.'s (2006)⁴ study reported that during glossolalia, the subject experienced a feeling as if some unidentifiable force had taken over him and tried to influence his thoughts and actions.

Interestingly, this is highly similar to descriptions reported by individuals who experience OBEs. They report that during some of their OBEs, they feel as if the instance of leaving their physical body, or the sense of hovering above their physical body, was directed by some force causing them to lose control of their physical bodies as well as their self (Sellers, 2019)³⁶; or as if some unidentified force literally forced them out of their physical bodies and dragged them to different times and places, often of unearthly origin (Sellers, 2015)³⁹. Newberg et al.'s (2006)⁴ study further revealed that during glossolalia the subject experienced a lack of control over his self.

The experience of self was studied by Heydrich et al. (2010)⁴⁰ who identified basic elements playing a key role in creating and sustaining bodily self-consciousness. The most important elements are self-identification, first-person perspective, and self-location. Interestingly, manipulation of the sense of self-location, which is linked to self-identification, may further trigger OBEs (Ionta et al., 2011)⁴¹. Similarly, the lack of control over self, reported by the subject during his practice of glossolalia (Newberg et al., 2006)⁴, may be linked to a decreased sense of self-identification, which is also linked to OBEs. Could the lack of control of self, as well as the diminished sense of self-identification experienced in both glossolalia as well as OBEs, be caused by breaking the oneness and co-existence existing between the consciousness and the physical body? Lenggenhager et al. (2007)⁴² came up with a similar hypothesis during experiments aimed at producing out-of-body sensations in people in virtual reality settings.

Furthermore, in their study, Blanke et al. (2002)²³ described a patient with epilepsy whose out-of-body-like experience was induced by electrical stimulation of the right angular gyrus. In particular, the study pointed out that the patient experienced vestibular problems, such as hovering above the body, or an abrupt sinking, including experiences similar to OBEs which the patient was not able to control. Experiencing out-of-body sensations, including the feeling of hovering above one's physical body, as reported by the epileptic patient in the study by Blanke et al. (2002)²³, did not last long and was probably caused by the electrical stimulation of the TPJ region on the right side of the brain, as suggested by the study. Similarly, Fink & Vogele (2003)⁴³ linked the body and self-processing, in the healthy population, to the TPJ on the right side of the brain. Interestingly, Blanke & Bunning (2005)²⁵ posited that OBEs are the result of self-processing that somehow activates at a higher level than that which is considered normal.

However, science so far lacks a thorough explanation as to what causes spontaneous OBEs, or OBEs that are triggered at will, in some individuals belonging to the healthy population. It is worth saying that OBEs of such individuals are not caused by any outside influences such as drugs, alcohol, hypnosis, trance, or other artificial stimuli, as reported in the case study of a

frequent, spontaneous, healthy OBEr, who has been experiencing OBEs since birth (Sellers, 2017)⁴⁴. Plus, the OBEs of this individual are further characterized by sensations of a clear separation/disembodiment from the physical body, produced by spontaneous OBEs. Individuals who experience OBEs are further likely to be exposed to the disruption of multisensory, as well as proprioceptive, perception (Sellers, 2017)⁴². Interestingly, the study by Lynn et al. (2011)⁸ similarly links decreased proprioceptive perception to glossolalia. In addition, individuals, during their OBEs, often experience a sense of lucid dreaming or waking dream, which is also a phenomenology found in hypnosis, trance, and semi-trance (Tart, 1968,⁴⁵ Tart, 1998;⁴⁶ Seller, 2018)³³. Glossolalia was similarly linked to trance in the study of Lynn et al. (2011)⁸. With respect to the experience of waking dream, experiencers of out-of-body states claim that despite the fact that during specific episodes of OBEs they are conscious of what is going on around them on the level of the real world, they perceive their surroundings as if in a fog or waking dream. Moreover, they often experience time distortions, which are also found in experiences occurring during meditation, trance, or other non-ordinary human experiences (Berkovich-Ohana et al.,⁴⁷ 2013; Sellers, 2015³⁸).

Furthermore, research on OBEs conducted by Tart (1998)⁴³ revealed interesting sleeping/dreaming patterns similar to those that can be identified as waking/lucid dreams. Lucid dreaming and OBEs are often described as one and the same phenomenon, despite the fact that there are major differences between the two. Tart's study described the OBEs of Robert Monroe, a well-known frequent out-of-body experiencer. During the experiment that took place in 1968, Monroe's OBEs showed a brain wave pattern similar to a Stage I ordinary dreaming pattern (Tart, 1998)⁴³. It consisted of theta waves as well as what Tart named alphoid activity. Theta rhythm is typical for ordinary sleeping and is a part of the Stage I sleeping pattern. Alphoid activity, according to Tart, might be experienced by certain individuals as drowsiness, i.e. the state of consciousness experienced right before falling asleep. This phenomenon is also known as hypnagogia.

The hypnagogic state is often experienced prior to the onset of an OBE (Sellers, 2019)³⁶, and is further found in trance and hypnosis which were both linked to glossolalia (Hine, 1969; 3 Spanos & Hewitt, 1979⁴⁸). Dresler et al. (2012)⁴⁹ posit that experiences such as hypnagogia or lucid dreaming may trigger extraordinary experiences. He studied neural correlates of lucid dreams and compared REM sleep during lucid and non-lucid sleep. Unfortunately, the current research of the OBE phenomenon mainly focuses on OBEs occurring in the clinical population. It would be interesting to conduct research into OBEs aimed at healthy individuals who claim their OBEs occur regularly, spontaneously, or voluntarily. Even more revealing would be an in-depth analysis of phenomenology, semiology, as well as the etiology of OBEs in healthy individuals versus OBEs induced by epilepsy, or other pathological conditions in the clinical population, which would then be compared against the phenomenology, semiology, and etiology of glossolalia and possibly other AHEs.

3. Near Death Experiences (NDEs)

According to Zingrone & Alvarado (2009)⁵⁰, around 17% of people who reported being close to death experienced an NDE. Research confirms NDEs may not only be experienced by adults, but also children (Morse, 1991)⁵¹. Atwater (1999,⁵² 2005,⁵³ 2012⁵⁴) similarly reports on numerous near-death experiences in children, from across different cultures, and how NDEs relate to human consciousness and the evolution of humankind. According to Moody (1975)¹², NDEs usually have the following common features: travelling through a tunnel,

seeing a light, ability to see and hear while out of the physical body, seeing deceased relatives, and the so called life review, etc.

A growing body of research suggests phenomenology as well as semiology of OBEs and NDEs share some common features (Mattingly, Nelson, & Schmitt, 2007; ⁵⁵ Greyson, 1983; ⁵⁶ Greyson, 2014; ²⁰ Sellers, 2017; ⁴² Sellers, 2019 ³⁶). In the study conducted by Nelson et al., 76% of near-death experiencers suggested they also experienced an OBE during their NDEs (Mattingly, Nelson, & Schmitt, 2007)⁵². They further reported they clearly were aware of existing outside their physical bodies after the onset of the OBE. Furthermore, a study conducted by Greyson (2007)¹⁷ suggested the reliability of NDEs over a period of almost 20 years; the study also showed that some individuals who experienced NDEs also experienced OBEs.

Greyson et al. (2014)²⁰ in the study on OBEs associated with seizures reported that out of 100 patients 7 patients in their responses on the NDE scale reported that they experienced sensations that felt like they left their physical bodies. Patients were asked to report subjective out of body sensations during their seizures. Interestingly, during her out of body experience, one woman reported what may be defined a dual consciousness. Based on her description, while she was floating above her physical body, she continued to be aware of sensations pertaining to her physical body. The female patient in the Greyson study was further able to view the surroundings from the elevated visuo-spatial prospective.

Sellers (2017)⁴² in her case study describes an OBER who during his OBEs often perceived his physical body from an elevated position. Greyson et al.'s (2014)²⁰ study also revealed that individuals who experienced sensations of leaving the physical body reported sensations of entering other dimension and/or realm. Similarly, Seller (2019)³⁶ describes subject who during OBEs was transferred at the speed of thought over long distances to different places including what the subject perceived to be other dimensions or worlds. Interestingly, in his case report Faco (2012)⁵⁷ suggested that people can experience NDEs without the presence of life-threatening situations or brain disorders.

Another interesting phenomenon occurring during NDE is the so called tunnel experience, despite the fact that the tunnel experience is being reported mostly by near-death-experiencers, such an experience could also happen during an OBE. Sellers (2017)⁴² describes an experiencer who reported frequent travel via tunnel during his OBEs. During his tunnel episodes, the experiencer did not report meeting the deceased relatives and/or family members as NDErs frequently report. Instead, he reported occasional encounter of spiritual entities. Research on NDEs conducted by Ring (1980)⁵⁸ suggested that out of 102 who reported being near to death, a quarter would experience the tunnel journey. Interestingly, the study further found that suicide attempters would describe NDEs differently from those who experienced NDEs as the result of a disease or accident. According to the study, NDEs resulting from a suicide attempt did not last long, and included elements similar to those occurring during OBEs such as detachment of the physical body or floating in space. It is further intriguing, that the element of tunnel in NDEs occurring during suicide attempts was missing (Ring, 1980)⁵⁶. A recent study on NDE memories showed that individuals who experienced a NDE reported NDE memories as real events, with a high emotional content when compared to real or imagined memories (Brédart, Charland-Verville, Dehon, Ledoux, Thonnard, 2013)⁵⁹. This is in line with an OBER who reported that his sensorial, perceptual, cognitive as well as affective processes during OBEs felt hyper real (Sellers, 2019)³⁶. According to him they were

“extremely real, with extremely vivid settings, highly intensified emotional perception, as well as intensified sensory input.”

4. Glossolalia, OBEs, NDEs and their transformative nature

Practicing glossolalia has been linked to psychological well-being. A study on glossolalia conducted by Francis & Robbins (2003)⁶⁰ involved 1,000 members of the British Evangelical Group. It was reported that up to 80 percent of the individuals in this group, who practiced glossolalia, enjoyed greater emotional stability and less signs of neurosis. Lynn et al. (2011)⁸, in their study, defined glossolalia as a form of religious behavior that affects the physiological state of an individual by reducing their stress, and is thus directly related to stress reduction. The study

looked at the cortisol levels in people who attended Mass on Sunday and reported a glossolalia experience. The study revealed that people who attended Mass on Sunday showed lower cortisol levels on Monday, the day after, according to biomarkers. Lower cortisol levels relate to higher psychological stability and less stress. According to Pattison (1968)⁶¹, glossolalia may be the consequence of a deep and meaningful spiritual exercise, and may play a vital role in changing the direction in a glossolalist's life.

Research on OBEs suggests that OBEs may have transformative and transcendent potential. In the study on no n-ordinary transformative experiences and their aftereffects, Dr. Nicole Gruel describes a case of a woman whose spontaneous OBEs triggered deep transformative experiences (Gruel, 2017)⁶². The process of the psychic opening of the woman culminated in a period during which she was able to function in a profound mystical like altered state of consciousness for the period of more than one year. De Foe (2012)⁶³ suggests that OBEs are transformative experiences that can have a significant impact on the individual's well-being. He further argues there has been a severe lack of research into therapeutic benefits of exploring OBEs.

According to him, one of the reason why this may be the case is the lack of a general agreement on how to approach the phenomenon of OBEs within the counseling framework in the first place. He further suggests that those who experience OBEs should openly talk about them in therapeutic settings. Individuals who undergo spontaneous OBEs occurring naturally may be hesitant to talk about it out of fear of being put down or ridiculed if they do (Parra, 2009)⁶⁴. Twemlow (1989) believes that therapists should consider OBEs as transformative experiences leading to spiritual transcendence. Schenk (2006)⁶⁵ in his study, examined the potentially healing nature of OBEs. He suggested techniques to artificially trigger OBEs in order to fully utilize their healing potential. Furthermore, Gelfkopf & Meyerson (2004)⁶⁶ attempted to utilize OBEs during hypnosis. Their study describes 3 different individuals who were able to induce spontaneous OBEs during hypnotherapy sessions. The study suggests, the induced OBEs proved helpful in advancing the therapies in all 3 individuals. Interestingly, the OBEs also seemed to help the clients with the anxiety related problems and proved to be an affective therapeutic resource.

OBEs in Twemlow et al.'s (1982)¹³ study reported mostly positive experiences during their out-of-body accounts. More specifically, 83% of respondents (from a total of 339) felt clam, at peace and quiet during their OBE, while 51% felt joy. The majority of respondents in Twemlow et al.'s study further reported being physically relaxed and mentally calm during their OBEs. This is in line with Braithwaite et al.'s (2011) study, according to which the vast

majority of OBEs occur during a relaxed state. Furthermore, a high number of respondents in Twemlow et al.'s study reported having an OBE while dreaming. Out of these, 83% were described by the experiencers as a "flying or falling" dream. Consequently, the question arises whether an OBE occurring during a dream should be considered a genuine OBE. I posit that an OBE occurring during a dream be considered an OBE-like experience. This is consistent with Braithwaite et al.'s (2011)⁶⁷ study which specifically excluded sleep-related states, such as dreaming, from the study of OBEs in the psychologically healthy population, on the basis that dreaming does not constitute a form of OBE. Similarly, peak experiences, which include OBEs, as well as NDEs, have been linked to states of high integration, triggering coherent brain functioning, as well as producing states of inner harmony, happiness, and ease of functioning (Harung, 2012)⁶⁸. They also reduce anxiety and are associated with lack of fear, which may indicate that peak experiences also impact the amygdala.

Individuals who experienced NDEs report deep transformative and transcendent accounts. They often report they felt calm, joyful, relaxed and peaceful during their experience (Greyson, 1981;⁶⁹ Greyson, 1983⁷⁰). Based on the Item Analysis of Preliminary NDE questionnaire, 57 (77%) NDErs experienced feelings of peace, while 47 (64%) NDErs experienced feelings of joy (Greyson, 1983)⁶⁷. In a study on NDEs and attempted suicide Greyson (1981)⁶⁶ suggested that suicide attempts which were accompanied by profound transformative NDEs may actually decrease future suicide attempts of the individuals who underwent those profound transformative experiences. Religious experiences individuals encounter during NDEs may have profound transformative effects notwithstanding the fact they may have common elements with pathological symptoms.

The study conducted by Greyson (2003)⁵³ researched connection between NDEs and psychological distress associated with it. It showed that 22 percent of the patients who underwent NDEs reported to experience less psychological distress compared to patients who did not report having a NDEs. Interestingly, a correlation may exist between spiritual growth and the intensity of NDE (Greyson & Khanna, 2014)⁷¹. Their study reports on spiritual transformation occurring after NDEs. It showed that near death survivors claimed stronger spiritual growth than comparison survivors. Since an OBE is usually an intrinsic part of each NDE, I hypothesize that OBEs too carry element of potential spiritual growth including spiritual transformation.

Furthermore, many OBErs, NDErs, as well as individuals who experienced other anomalous experiences report seeing light in different shapes and colors during those experiences. Light is often considered a transformative and transcendental element across anomalous experiences. Twemlow et al.'s OBE study (1982)¹³ reported OBErs seeing a brilliant white light. 44 of the total 339 subjects opined the light was very attractive, calming, transformative, while 32 subjects thought the light, in reality, was a being who tried to communicate with them. Interestingly, the study further revealed that 25% of respondents saw a white light at the end of a dark tunnel episode they experienced as part of their OBE. Furthermore, Ring (1980)⁵⁵ posits that one of the stages when experiencing NDEs is seeing a brilliant light, as well as entering a different realm or world of existence, with the help of the light.

Greyson et al.'s (1983)⁵³ study in the Item Analysis of Preliminary NDE questionnaire (NDE scale) showed that 43% of 74 respondents (with an 81% response rate) reported unnaturally brilliant light during their NDE. Sellers (2017)⁴² similarly describes a subject, who claimed that during his OBEs, his surroundings not only appeared in brighter colors than what is considered normal under a regular state of consciousness, but also he was able to see colors

that were not visible when in the physical body. The subject further claimed he was no stranger to anomalous perception such as sensing or seeing lights, colors, or different shapes of light and sound coming from an unidentified source. Sellers (2017)⁴² further described the following visual elements occurring during the OBEs of the subject of the study:

- visions of bright glare despite the fact that the OBEs take place at night and in complete darkness,
- visions of bright vibrant colors or plasma-like shimmering lights accompanied by sounds.

Furthermore, Hoepner et al. (2013)²² report on a total of 5 subjects who experienced ictal autoscopic phenomena, out of which 4 reported experiencing OBEs, and one subject reported autoscopia. It is worth noting that Hoepner et al. used Greyson's NDE scale to study their subjects' autoscopic phenomena. The scale consisted of 16 items divided into 4 subscales:

cognitive, affective, paranormal, and transcendental. Questions related to phenomenology typical of NDEs, such as speeding up thoughts and time, experiencing feelings of harmony or unity with the universe, feelings of joy, pleasantness, experiencing brilliant light, feelings of separation from the physical body, experiencing scenes from both past and future.

Interestingly, the study reported that the experience of ictal autoscopies may have some features similar to NDEs. Moreover, I hypothesize that ictal autoscopies may in some aspect resemble certain characteristics of OBEs. Further, OBEs and NDEs have a number of similar features related to both phenomenology, as well as semiology, of the phenomena. Thus, experiencing a near-death feeling does not mean one has to be dying or experiencing a situation which would threaten their life in one degree or another (Faco, 2012)⁵⁴. I posit that not only ictal autoscopic phenomena, but also OBEs can cause semiology and phenomenology similar to that experienced during a NDE. Hoepner's subjects reported the following transcendental features as part of their autoscopic encounters: separation from body; entering some other, unearthly world; coming to a border or point of no return.

5. Glossolalia, OBEs, NDEs: Pathology or non-pathological religious/spiritual problem?

The phenomenology and semiology of glossolalia, xenolalia, OBEs, or NDEs resulting in anomalous mystical or religious experiences, may resemble characteristics occurring during psychosis. Twemlow (1989)¹⁶ posits OBEs should not be considered pathological or something unusual. According to Keri (2017), OBEs and other anomalous accounts, such as glossolalia and even obsession (which at its higher-level manifests as possession), may be diagnosed as pathology (psychosis) unless cultural background of the individuals experiencing them is taken into consideration. In one of his studies, Keri (2017)⁷² looked at relationship between religious conversion, as a form of spiritual emergency, and psychosis. The study showed that 24 individuals out of 53 referred to a psychiatry center with psychosis, actually were not pathological ill at all. Instead, they experienced spiritual experiences such as religious conversion which resulted in a deep transformative episode in their lives.

In other study, Greyson (1997)⁷³ examined differentiation of NDEs and other related phenomenon from mental disorders. Greyson posits that the inclusion of the new diagnostic

category of religious and spiritual problem in the DSM-IV allows for acknowledgment of exceptional experiences such as NDEs, OBEs and other paranormal experiences as form of spiritual emergence rather than psychotic pathology given the fact that both may have some common features. Thus, there is new hope for people experiencing religious or spiritual experiences which are too much for them to digest without seeking appropriate professional help.

The hope comes in the form of a new diagnostic category called “Religious or Spiritual Problem,” which in 1994 was officially entered into the Diagnostic and Statistics Manual of Mental Disorders (DSM) IV.⁷⁴ The new category actually defines religious or spiritual problems as distressing episodes in the life of individuals involving the questioning of spiritual values which are not necessarily related to an organized church or religious institution. Based on this diagnostic category, spiritual problems may for the first time be officially treated as non-pathological rather than pathological problems. According to Keri (2017)⁶⁹ such spiritual experiences may be accompanied by “pathological” symptoms such as hallucinations, odd behavior, depression, and/or odd thoughts.

Therefore, individuals suffering from such symptoms may be misdiagnosed with mental illness. As Grof (Grof & Grof, 1990)⁷⁵ pointed out, spiritual and mystical experiences offer personal growth potential. They can trigger a powerful transformation and further personal development in individuals undergoing such experiences. Mislabeling them as pathological symptoms may be damaging to spiritual development as well as to the individual’s psychological and physiological well-being. Crowley (2006)⁷⁶ posits spiritual opening is organic process within human development during which individuals are able to experience transpersonal elements.

Persinger’s study (1984)⁶ revealed intriguing EEG activity in separate cases of glossolalia and transcendental meditation. It showed delta wave activity in the temporal lobe that lasted about 10 seconds and occurred during transcendental meditation. The second case involved spike wave activity in the temporal lobe of an individual who performed glossolalia. Both cases represent healthy individuals with no history of pathology. Based on the study, Persinger hypothesized that experiences of mystical and religious nature naturally occur in the temporal lobe and are of a transient nature.

Interestingly, some of the OBEs, during their OBEs, experience symptoms similar to depersonalization, derealization, or dissociation (Sellers, 2019)³⁶. Furthermore, Sellers (2017)⁴² describes a case of a frequent OBEr who belongs to the healthy population and who, during OBEs, experiences traits that resemble some characteristics of aphasia, agnosia, as well as alexia.

Those features can similarly be found in OBEs in the pathological population. A study by Blanke et al. (2004)³⁴ reports instances of autoscopia (which includes OBEs) within the pathological population, during which subjects experienced characteristics of aphasia, agnosia as well as apraxia. Furthermore, the subject described by Sellerrrs (2017)⁴² in her case study often experiences synesthesia or linking of senses. Synesthesia is defined as a condition during which a unimodal sensory event is perceived by an experiencer in multimodal perceptual experiences (Blake, Flanery, Palmeri, Marois, Whetsel Jr., 2002)⁷⁷. Bor, Clayton, Rothen, Seth, Schwartzman, (2014)⁷⁸ defines synesthesia as a condition where perception of one class triggers separated perceptions of other perceptual classes. Interestingly, synesthesia is not considered pathological, but neurological condition.

Synesthesia may trigger instances of different anomalous perceptions. For instance, listening to music may create colors as well as geometrical forms attached to it to the degree that the individual notes generate their own shapes and geometric patterns (Sellers, 2019)³⁶. The accounts of synesthesia may be similar to the linking of senses accounts caused by the so-called sensory flooding described in the CAPS study (Bell et al., 2006)⁷⁹. Participants in the study reported experiencing sensations happening all at once as well as an inability to tell one sensation from another. This seems to be in line with the sensory flooding experience of an OBEr (Sellers, 2017)⁴², who reported smelling, tasting, touching, and hearing objects at distance and ability to perceive them all at once. He further reported experiencing “chemosensation”, a strange olfactory as well as gustatory sensation, “out of the blue.” This too corresponds to the results drawn from CAPS, which revealed chemosensation to be one of the three main components analyzed by the CAPS in the participants of the healthy population. It is important to notice that both the OBEr as well as the CAPS participants belonged to the healthy population.

The study conducted by Nobakht & Dale (2018)⁸⁰ implies that dissociation as well as trauma are a common feature in both near death experience as well as mystical experiences. Kroll et.al (1996)⁸¹ studied the relationships between different types of altered states of consciousness such as mysticism, absorption and dissociative episodes and childhood and adolescent trauma and neglect. The study showed that the tendency to experience dissociative states of consciousness was not correlated with the tendency to undergo mystical experiences characterized by altered states of consciousness.

According to the study conducted by Ataria (2016)⁸² similarity exists between mystical and traumatic experience. The author posits that one of the most significant common element of both experiences is the subject’s encounter with nothingness. Interestingly, Greyson & Khanna’s study (2014)⁶⁸ of near death survivors showed that NDEs are associated with greater posttraumatic spiritual growth. The study further revealed that NDEs have no influence on posttraumatic spiritual decline.

A study conducted by Kaselyonite & Gumley (2019)⁸³ took a closer look at 22 individual cases of the so-called extreme mental states. They were experienced by individuals while practicing different kinds of meditation. The study revealed that some of the cases of the mental states, experienced during meditation, were interpreted as psychiatric symptoms (psychosis) while others as spiritual emergencies.

If you take possession, in some cultures it is pathologized as a dissociative disorder, which manifests itself in identity disruption. It is characterized by the presence of two or more distinct personality states, i.e. distinct individuals within one individual, which manifests as dissociative identity disorder (DID), previously known as multiple personality disorder.

Although possession is generally considered a form of mental illness or pathology, it can also be considered a spiritual form of a certain type of social behavior, such as taking on a strategic social role. Freud considered possession as a manifestation of neurosis. Psychiatrist Richard MacKarness (1974)⁸⁴ expressed the view that people may be affected by good or evil forces that are invisible, and may cause possession. According to MacKarness, in some cases the effects of evil forces are so profound that the only effective treatment applied in these cases of possession is exorcism.

In 1983, Dr. MacKarness treated 6 patients who were diagnosed with a clear demonic possession. Interestingly, each of those patients recovered thanks to the application of Christian exorcism (MacKarness, 1974)⁷⁹. Furthermore, Lukoff (1998)⁸⁵ who works with spiritually transformative experiences, considers possession a form of spiritual awakening, which in some cases may result in the form of spiritual distress and may be treated as a spiritual or religious problem. DSM-IV allows for some anomalous experiences such as OBEs, NDEs, religious conversion, shamanic journeys, etc. to be treated as a form of spiritual emergency rather than pathology. Furthermore, according to Madden (1994)⁸⁶, the physical pain Teresa of Avila suffered from may have been interpreted either as conversion hysteria or conscious suffering as a means to undergo inner transformation. According to Facco *et. al.* (2020), extreme fasting may trigger some pathological symptoms such as hallucinations or illusions, but fasting also has much deeper implications including spiritual transformation. Spiritual dimension should be taken into account in the case of an extreme fasting of Teresa of Avila and Catherine, although some may have mistaken the fasting for pathology in the form of anorexia (Facco *et.al.* 2020)⁸⁷

6. Conclusion

AHEs such as glossolalia, xenolalia, OBEs, and NDEs share some common phenomenology, semiology, and possibly etiology as they are all related to functional activity in the brain. Current psychiatry mostly treats AHEs as pathological problems, rather than spiritual or religious problems. AHEs also can be linked to transformative and transcendent elements as suggested by some studies.

It is my belief that the AHEs described in the paper occurring within the healthy population where there is no history of clinical pathology should be fully respected by the society and treated as non-pathological. As of today, there is no substantiated scientific evidence that anomalous or other extraordinary experiences of spiritual nature are pathological. On the contrary, in many instances they lead to deep transformative events that bring a host of potential benefits to their experiencers, especially in the form of spiritual transformation as well as positive psychological well-being.

In general, the phenomenology and semiology of AHEs indicate there are multiple diverse factors contributing to anomalous cognition and perceptual experience. The mechanism based on neural network processing by which this kind of abnormal perception is possible remains elusive and would still need to be defined. Further research into neural correlates of AHEs would be enlightening.

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