**Glossolalia, xenolalia, out-of-body experiences: A brief review and comparison.**

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**Abstract**

Anomalous human experiences (AHEs) are frequently experienced by a number of the healthy as well as the pathological population. The paper provides a brief review of phenomenology as well as semiology of AHEs such as glossolalia, xenolalia, out-of-body experiences (OBEs) and their possible common characteristics. It further describes two anecdotal cases of glossolalia and xenolalia. The paper also briefly looks at the possible transformative elements as well as pathological features of the above mentioned AHEs.

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

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 during 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). Goodman (1969)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. Cartledge (2002) argues that from theological perspective glossolalia may be characterized as sacramental and trinitarian. He further maintains that glossolalia constitutes an important component of the Kingdom of God (Cartledge, 2002). Other authors studied glossolalia as part of religious charismata and a form of transcendent communication which has an impact on religious conversion (Holm, 1991). Johnson (2010) posits that glossolalia is an implicitly learned sacred behavior. Yong (1998) considers glossolalia a form of divine speech which results in the transformed witness of the glossolalists. May (1956) maintains that glossolalia and related phenomena often occur during shamanistic rituals. He identified as many as 6 different types of glossolalia and other speech phenomena occurring during shamanistic ecstatic rituals. Hempel et al. (2002) conducted the first study of glossolalia in a forensic setting. The study concluded that glossolalia was connected with mania and delusions of religisous and sexual nature.

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). 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), conversely showed increased activity during prayers and contemplations of Carmelite nuns in a separate study, conducted by Beauregard & Paquette (2006). 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)and Beauregard & Paquette (2006) 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).. 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 of the healthy population and are transient in nature.

This seems to be consistent with the study conducted by Reeves et al (2014). The study described a case of a glossolalist who manifested temporal lobes discharges while speaking in tongues. The subject studied was a 44-year-old female. Interestingly, during glossolalia the woman showed temporal lobe discharges in the form of spike wave activity. She further experienced jolting of her left arm while practicing glossolalia. In addition, Kavan’s study (2004)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)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 glossolalia**

Below are described some phenomenological as well as semiological characteristics of individual glossolalia occurances as experienced by a 51 year old white Caucasian Christian Catholic female worshiper. The worshiper, for the purpose of this paper, was called Ms. X.

All information concerning the glossolalia practise of Ms.X for the purpose of this paper was collected in informal settings relying on direct observation as well as personal subjective testimony. Thus the information concerning the below described case of glossolalia is subjective in its nature.

Ms. X explained that when she practices glossolalia the practice itself usually involves several stages. The first stage begins a couple of minutes after she starts contamplaining (praying) in a sitting position. It usually begins with her upper limbs starting to move spontaneously and her body swinging from side to side. She loses control of her body, as if her body was “controlled by some force that emanates directly from within me” as related my Ms. X.

According to Ms. X, the unidentified force further causes her to lose control not only of her somatic body but her self too. During glossolalia Ms. X experiences what could be called a decreased sense of self-identification. She maintains she voluntarily surrenders to the unidentified force emanating from within her. She feels extremely attracted by the force due to the fact that it evokes deep feelings of inner peace, transcendence as well as innafibility within her “physical as well as spiritual body.”

As mentioned earlier, at the beginning of each glossolalia practice, which is mostly being done in a sitting position, Ms. X’s upper body starts to swing from side to side. The swinging consists of slow swings at the beginning followed by accelerated swings. Interestingly, the fast and slow swings switch turns in a coordinated way. After a couple of minutes of coordinated swinging, Ms. X's lips as well as her jaw begin to move. As the lips move, the teeth collide and make loud noises. The sounds uttered by Ms. X are incomprehensible. However, these are not individual words. Rather they sound almost like a humming while the lips and jaw are moving rhythmically as if following some inner rhythm or an inner hidden melody. While this is progressing, Ms. X’s tongue moves sharply within her mouth. Sometimes, it shoots out of her mouth.

Next, during her glossolalia practice, the intensity of Ms. X’s voice increases and decreases cyclically. According to Ms. X, she is not able to control the intensity of her voice during glossolalia practice. Based on her description as well as direct observation, the sounds are uttered spontaneously and automatically. Ms. X feels as if the intensity of her voice, the movements of her lips, jaw, tongue, arms and the body swings follow some unidentified hidden pulses emanating from her body in the form of vibrations. According to Ms. X, these pulses are coordinated by some inner force, which when fired out manifests itself in the form of the movement of lips, jaws and tongue. This is accompanied by sounds of different intensity, mumbling, humming, or uttering incomprehensible words joined by spontaneous body movements.

When Ms. X performs glossolalia in a supine position, both upper limbs shoot to the sides at a pace she can not control. Her head turns from side to side as well. All this resembles epileptic seizure or shamanic ecstatic state. After a while, the firing of both arms as well as the head turning to the sides accelerates to the degree that the whole body is jerking. Ms. X experiences dizziness, vertigo as well as other proprioceptive challenges. Furthermore, Ms. X explains she feels as if the humming noise she is uttering during glossolalia wasn't hers. It is deeper in quality and according to Ms. X, it feels as if it was not coming from her throat but somewhere deep in the abdomen.

Sometimes, during glossolalia practice, Ms. X begins performing coordinated movements similar to a ballet dance. Ms. X claims it is dancing in the spirit. She further claims that during glossolalia practice she is well aware of the fact that all parts of her physical body perform individually. Nonetheless, they form one coordinated whole as if a part of an orchestra coordinated by a conductor. According to her, this conductor is the hidden undefined force that controls her body. Ms. X feels as if her tongue, jaws, teeth, throat, limbs, head were individual musical instruments that follow the conductor in a rhythmic, pulsating way in order to produce a comprehensive melody. She claims it is similar to a musical concert. Ms. X feels as if the aim of the concert was to proclaim God’s power while her body was the instrument through which God's power emanates. After each glossolalia practice Ms. X feels full of energy and joyful. She claims after performing glossolalia she usually does not experience hunger or thirst for a long period of time. She maintains glosolalia is a kind of therapy resulting in a rush of more energy, confidence and inner peace. For her it is a state of bliss and communion with the Sacred.

Below is a list of some phenomenological as well as physiological correlates of the individual accounts of glossolalia as experienced by Ms. X.

- presence of a variety of physical sensations such as vibrations of various intensities

-light dizziness

-brief accounts of vertigo and other vestibular, and proprioceptive challenges

-challenges in the balance between intrapersonal and extrapersonal space

inability to control the physical body:

- upper limbs shaking from side to side

-head turning from side to side

-lips and jaws moving

-tongue moving and firing out of mouth

-occasional subtle sensations of floating

- losing perception of the self

- feelings of transcendence, ineffability

-time distortions, perceptions that time does not exist, inability to sense time flow

-spontaneous movements similar to performing a ballet dance

-uttering sounds in the form of humming and/or incomprehensible mumbling

**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).. On the other hand, glossolalia represents random verbal utterances not an existing language (Yong, 1998). Some neurophysiology studies describe cognitive and neural functions differences between glossolalia and xenolalia (King & Selvendran, 2019).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 autoscopic phenomena such as out-of-body experiences. What follows is a description of the individual case of a psychiatric patient presented at the conference by Samuel Sandweiss, 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 Timalsina, 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. Timalsina 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. Some authors posit xenolalia belongs to non-neurogenic language disorders (Mendez, 2018). According to Yong (1998), pentecostal view of xenolalia defines the phenomenon as a vehicle for transformation.

**Glossolalia and OBEs**

It is worth noting that the phenomenology and semiology similar to that described in the studies of glossolalia by Lynn et al. (2011), Newberg et al. (2006); Persinger (1984); and Kavan (2004)and the presented cases of glossolalia and xenolalia, also occur during autoscopic phenomena such as OBEs. OBEs are considered to be a part of the so-called autoscopic phenomena (Brugger and Regard, 1997).

The subject studied by Newberg et al. (2006), among others, reported no control over the language centers of the brain at the exact time he was experiencing glossolalia. Interestingly, 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). Blanke et al. (2004) found that certain subjects experiencing autoscopic phenomena including OBEs (which some authors consider mystical in nature) indeed show symptoms of aphasia. However, the subjects of Blanke et al.’s study belonged to the neurological pathological population as opposed to OBEr in Sellers’ (2019) study who was a healthy subject. In addition, the same subject frequently experienced aphasia with disgrammatism, which jointly with xenolalia, some authors (Mendez, 2018) consider non-neurogenic language disorders. Chouiter and Annoni (2018), on the other hand, posit that glossolalia constitutes a special mental occurence not associated with neurolinguistics. It is different from aphasia in that glossolalia is not linked to affection of the central nervous system. Interestingly, the semiology of some of Ms. X’s tongue speaking instances may indeed reveal certain features of aphasia, especially when it comes to uttering unrecognizable words.

According to Sellers (2019), during his OBEs the OBEr further reported the total inability to speak, as if overwhelmed by feelings of ineffability. Similar feelings are also reported by glossolalia practitioners. 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, mystical experiences and experiences of the so-called unitive consciousness.

This seems to be in line with Ms. X’s experiences. She claims to experience feelings of ineffability when she engages in tongue speaking. They are overwhelming to the degree that she is not able to communicate her feelings or thoughts at the given moment. According to Ms. X the feelings of ineffability she experiences while practising glossolalia rob her of the ability to speak. Ineffability is a common feature experienced by individuals during mystical states. Bennet-Hunter (2015) considers ineffability divine. He posits that the topic of ineffability was largely omitted in the writings of philosophers despite the fact that it is an integral part of Christian mysticism. Interestingly, according to Yaden et.al (2016), mystical experiences including experience of ineffability can actually be meaningfully communicated with the help of quantitative language analyses.

In addition, Newberg et al. 's (2006) 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 Ms. X as well as individuals who experience OBEs. Ms. X frequently reported total loss of the control of her body, as if her body was controlled by some force emanating directly from within her. Similarly, the OBErs 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 (Sellers, 2019). They further claim that some unidentified force literally force them out of their physical bodies and drag them to different times and places, often of unearthly origin (Sellers, 2015).

Newberg et al. 's (2006)study further revealed that during glossolalia the subject experienced a lack of control over his self. This seems to be consistent with Ms. X's description of losing the sense of self when practising glossolalia. The experience of self was studied by Heydrich et al. (2010)who identified basic elements playing a key role in creating and sustaining bodily self-consciousness. According to him, the most important elements playing a role in creating bodily self-consciousness are self-identification, first-person perspective, and self-location. Interestingly, manipulation of the sense of self-location, which is linked to self-identification, may also trigger OBEs (Ionta et al., 2011). Similarly, the lack of control over self, reported by the subject during his practice of glossolalia (Newberg et al., 2006), 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 disintegrating the unity and co-existence existing between the consciousness and the physical body? Lenggenhager et al. (2007) came up with a similar hypothesis during experiments aimed at producing out-of-body sensations in people in virtual reality settings.

Individuals who experience glossolalia are further likely to be exposed to the disruption of multisensory, as well as proprioceptive perception (Lynn et al. 2011). This seems to correspond to the proprioceptive challenges experienced by Ms. X during practising glossolalia. Interestingly, the study by Sellers (2017) similarly links decreased proprioceptive perception to OBEs.

In addition, practicing glossolalia may be connected to experiencing a sense of the so-called waking dreams. The subject studied by Reeves et al. (2014) showed onset of a dream-like state when they performed glossolalia. This seems to be in line with OBErs who similarly experience a sense of lucid dreaming, waking dream, or dream-like state during their OBEs. This phenomenology is found in hypnosis, trance, and semi-trance (Tart, 1968, Tart, 1998; Sellers, 2018). Dream-like states may be compared to hypnagogic states which are states individual experience prior falling asleep. Interestingly, the hypnagogic state is often experienced prior to the onset of an OBE (Sellers, 2019), and is further found in trance and hypnosis which were both linked to glossolalia (Hine, 1969; Spanos & Hewitt, 1979). Dresler et al. (2012)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. 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 (Sellers, 2017).

Moreover, they often experience time distortions, which are also found in experiences occurring during mediation, trance, or other non-ordinary human experiences (Berkovich-Ohana et al., 2013; Sellers, 2015). Time distortions were similarly experienced by Ms. X when practising glossolalia. She claimed: “ the time does not flow at all, when I am tongue speaking. “ This is consistent with Persinger’s (1974) and Berkovich-Ohana et al.’s (2013) study which links anomalous experiences with distortions in physical time. Interestingly, the study of Berkovich-Ohana et al. (2013) revealed possible implications of the right temporoparietal junction (TPJ) in the distinct sensations of time distortion.

Based on the above, glossolalia and OBEs may share similar phenomenology as well as semiology. 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.

**Glossolalia, OBEs and psychological well-being**

Many authors consider glossolalia a form of divine speech as well as sacramental transcendent communication (Cartledge, 2002; Holm, 1991; Johnson, 2010; Yong, 19980, ).

Practicing glossolalia has been further linked to psychological well-being. A study on glossolalia conducted by Francis & Robbins (2003) 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), 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), 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. Based on the study of Spanos and Hewit (1979) individuals who performed glossolalia showed lower depression compared to nonglossolalists.

Similarly, practising OBEs are linked to psychological well-being and transformative effects. The transpersonal element of altered states of consciousness including OBEs has been recognized by many transpersonal authors (De Foe, 2012; Schenk, 2006; Gelfkopf & Meyerson, 2004).  The majority of the current OBE studies examine elicited OBEs in the clinical population rather than the healthy population, or OBEs which are induced artificially rather than at will or occurring spontaneously in the waking/active state.) suggests that since OBEs are transformative experiences which may have a significant impact on an individual's psychological well being, experiencers should be encouraged to openly talk about their extraordinary experiences within a counseling setting. Some OBEs may further be life changing. Schenk (2006) tried to use waking dreams which are referred to as lucid dreams in his therapies to attain an OBE like experience for the purpose of advancing personal growth of his clients. Gelfkopf & Meyerson (2004) posit that inducing OBEs during hypnosis help individuals with anxiety related problems and prove to be an effective therapeutic resource. De Foe in his study (2012) argues there has been a severe lack of research into therapeutic benefits of exploring OBEs.

**Pathology or spiritual transformation?**

A number of studies implicate resemblance between paranormal experiences and pathological states such as psychosis (Persinger & Valliant, 1985; Twemlow, 1989; Sellers, 2019; Chouiter & Annoni, 2018; Keri, 2017; Keri 2020). Similarly, the phenomenology and semiology of glossolalia, xenolalia, and other AHEs resulting in anomalous mystical or religious experiences, may resemble characteristics occurring during psychosis. However, according to Hine (1969), Keri (2017; 2020), Persinger (1984) and many others, hypotheses that try to explain glossolalia simply as pathological, or the result of hypnosis, are inadequate.

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 mistakenly diagnosed as pathology (psychosis) unless cultural background of the individuals experiencing them is taken into consideration. In one of his studies, Keri (2017) looked at the relationship between religious conversion, as a form of spiritual problem, and psychosis. The study showed that 24 individuals out of 53 referred to a psychiatry center with psychosis, actually were not pathologically ill at all. Instead, they experienced spiritual experiences such as religious conversion which resulted in a deep transformative episode in their lives.

In another study Keri et. al (2020) aimed at comparing glossolalia and schizophrenia. The study showed that participants exhibiting glossolalia did not meet the DSM-5 criteria for schizophrenia. The study further concluded that glossolalia should not be considered pathological in nature. Interestingly, the study also showed that hypermentalization may be considered one of the main traits of glossolalia. Keri et.al’s study further showed that glossolalists did not show depressive-anxious and other pathological features as was the case with individuals suffering from schizophrenia. This seems to be consistent with the study conducted by Spanos and Hewit (1979) which showed that individuals who performed glossolalia showed lower depression compared to non glossolalists. Similarly, Chouiter and Annoni (2018) posit that glossolalia is not pathological. The study suggests there may be a psychiatric type of glossolalia which while exhibiting the same phenomenological characteristics is different from religious glossolalia.

A study conducted by Persinger and Valliant (1985) links temporal lobe disturbances with experiencing paranormal states including mystical experiences. It is important to note that the study was conducted within the healthy population. Interestingly, experiencers in the study, although healthy subjects, reported experiencing different pathological symptoms during their paranormal experiences, such as hearing voices, olfactory disturbances, anomalous vestibular experiences as well as depersonalization symptoms. Some of the phenomenology described in the case of glossolalia and xenolalia above as well as some OBE features in the healthy population (Sellers 2017; Sellers, 2018; Sellers 2019) may indeed resemble depersonalization, derealization or dissociation symptoms as based on DSM-V (American Psychological Association, 2013). Although different intensities of OBEs may be distressing to one degree or another, they may not necessarily be of pathological nature. According to Twemlow (1989), OBEs should not be treated as pathological or something abnormal. He therefore posits that transpersonal therapists should view OBEs as experiences with potential spiritual transcendence. I posit that experiencing AHEs such as glossolalia, xenolalia as well as OBEs does not automatically mean that the experiencer suffers from a psychosis. It is my belief that they may be considered profound transformational experiences and/or spiritual problems. They may or may not have features resembling psychosis.

**Conclusion**

AHEs such as glossolalia, xenolalia or OBEs 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. However, AHEs also can be linked to transformative and transcendent elements as suggested by some studies.

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.

It is my belief that the AHEs 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. Especially, studies examining glossolalia concluded that individuals practising glosolalia showed lower depression, higher psychological stability and less stress.

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