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Common Characteristics of Anomalous Perceptual Experiences

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ABSTRACT

This paper presents phenomenology of out- of-body experiences (OBEs) occurring spontaneously or pathologically triggered as well as other types of anomalous perceptual experiences such as near- death- experiences (NDEs), temporal lobe irregularities, and ictal autoscopic phenomena (IAP). The paper further presents a brief overview of some of the OBEs studied in both the healthy and pathological populations, as well as anomalous perceptual experiences, with features common to OBEs, in the healthy population, as well as, pathological population.

KEY WORDS

anomalous perceptual experiences, out-of-body experiences, near-death-experiences, ictal autoscopic phenomena.

Introduction

People report experiencing out-of-body experiences (OBEs) as part of near-death-experiences (NDEs), or induced by hypnosis/trance/meditation techniques/contemplation and praying, epilepsy, cardiac arrests, brain injuries, life threatening situations such as resuscitation or a sudden shock, activities such as extreme exercising, or elicited by out-of-body-like experiences such as body parts distortions created under a virtual reality setting (Moody, 1975; Blanke, Landis, Ortigue, & Seeck, 2002; Fenwick & Parnia, 2002; Braithwaite, 2008; Blanke, Heydrich, Lopez, & Seeck, 2011; Craffert, 2015). OBEs associated with cases of migraines, drug use, and anesthesia have been reported as well (Podoll & Robinson, 1999; Blanke & Bunning, 2005; Annoni, Forster, Habre, Iselin-Chaves, & Lopez, 2006).

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 centre of consciousness appears, to the experiencer, to temporarily occupy a position which is spatially remote from his/her body" (Irwin, 1985, p.5). Blackmore suggested OBEs are an experience in which the experiencer "seems to perceive the world from a location outside his physical body" (Blackmore, 1982, p.1). A study conducted by Messier and Smith (2014) 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. According to Blackmore (1982), the onset of an OBE would be characterized by the following features: no sensory input from the physical body, while the individual experiencing the OBE would remain conscious. OBEs studies reveal that more than 10% of the healthy population have experienced an OBE at some point (Blackmore, 1982; Irwin, 1985). People experiencing OBEs further report that the experience itself feels very real while it is happening (Blanke, Brugger, & Mohr, 2006).

OBE studies

The predisposition to OBEs among the healthy population was measured by the Cardiff Anomalous Perception Scale (CAPS), which serves as a measure of propensity to anomalous perception (Braithwaite et al., 2011). The study of Braithwaite et al. (2011) was reportedly the first investigation of predisposition to OBEs in the non-pathological population, employing CAPS as well as the Launay-Slade Hallucination Scale (LSHS). CAPS consists of 32 items classified into nine

selection categories pertaining to the following anomalous experiences: 1) changed intensity of sensory perception, 2) non-shared sensory experience, 3) distortions in sensory experience, 4) perception of an unexplained source in the form of sensory experience, 5) verbally based hallucinations, 6) form/size/shape/distortions, 7) perceiving thoughts out loud and hearing thoughts as an echo, 8) the so-called sensory flooding, and finally 9) temporal lobe challenges (Bell et al., 2006).

According to Bell et al. (2006), the CAPS has a high level of reliability and uses a neutral language. Furthermore, it is important to state that for the purpose of the CAPS study, items which did not occur in a clear waking conscious state were removed from the CAPS so that a clear distinction could be made between the waking state and such states as the borderline between sleeping and waking. Braithwaite et al. (2011) show that out-of-body experiencers reported a high level of anomalous perception as revealed by their CAPS scores. In general, the study showed that OBEs are consistent with disturbances of temporal lobe and body-based processing. Specifically, the OBErs scored significantly higher scores than non-OBErs in the following CAPS subscales: temporal lobe instability, body-distortion, thought echo/out loud. Thus, the study showed that OBErs indicated a higher number of perceptual anomalies compared to the non-OBErs, despite the fact that they did not have any pathological history such as epilepsy or seizure (note that both OBErs and non-OBErs belonged to the psychologically normal population as indicated earlier). As mentioned above, the research represented the first empirical investigation of OBEs employing the CAPS measures. It is further worth noting that the CAPS measures were also employed to investigate the OBEs of a frequent experiencer (Sellers, 2017). Interestingly, the subject (a healthy man belonging to the normal population) showed elevated CAPS scores. He replied yes to all 32 questions, thus receiving the maximum score.

OBE occurrences are further consistent with temporal lobe disturbances in the healthy population as shown by the Braithwaite et al. (2011) study. Interestingly, temporal lobe disturbances are frequently found in paranormal experiences such as religious, mystical, spiritual experiences, or sense of presence. Persinger speculated that religious experiences, including mystical perception, spontaneously occur in the temporal lobe within the healthy population. This seems to

support another study conducted by Persinger and Valliant (1985) which too, 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 anomalous symptoms during their paranormal experiences, such as hearing voices and other sounds, olfactory disturbances, anomalous vestibular experiences, seeing light, colors, time and space distortions as well as depersonalization symptoms. I will now examine some of the symptoms more closely.

Sense of presence

One of the poorly understood experiences frequently associated with anomalous perception such as autoscopic phenomena, mainly OBEs, is sense of presence. Sense of presence is a paranormal perception which can be described as the feeling of someone being near you, when in fact there's no one there.

According to Persinger (2001), as well as Persinger & Makarec (1986), the sense of presence phenomenon may be related to the disturbance of the temporal lobe associated with a specific type of neural activity within the temporal lobe.

In addition, according to Persinger (2001), people with mild brain injuries would have frequent paranormal episodes, as well as mystical accounts, including the feeling of a presence. Most of the paranormal episodes would be attributed to the right side of the brain. Specifically, the patients would show heightened brain activity over the parietal and temporal regions. This is in line with the study of Devinsky and Lai (2008) who reported that individuals suffering from temporal lobe epilepsy would undergo religious or spiritual experiences between, during, or after seizures.

Experiencing sense of presence was further implicated in the electric stimulation of the left temporoparietal junction (Arzy, Blanke, Ortigue, Seeck, and Spinelli, 2006). Brugger and Regard (1997) posit that sense of presence should be classified as autoscopic phenomena. In addition, experiences pertaining to the sense of presence were reported in the CAPS study (Bell et al., 2006). The Temporal Lobe category of the survey included a question on whether participants have ever sensed the presence of another being, despite being unable to see any evidence. Interestingly, this question was taken from a Makarec and Persinger study (1985), which aimed

at studying temporal lobe disturbances. The study, among others, revealed that people with temporal lobe disturbances often report sensing the presence of another being. Moreover, Persinger and Healey (2002), in their study, showed the sensed presence phenomenon can also be induced by applying a magnetic field over the temporal lobe. Braithwaite et al. (2011) similarly confirmed that the subjects participating in the CAPS study experienced disturbances attributed to the temporal lobe, such as distortion of time, or a feeling of sensed presence. Moreover, the study showed that the group of OBErs reported significantly higher temporal lobe instability compared to the group of non-OBErs.

This seems to be consistent with Sellers' report (2019) of an anomalous experiencer who reported instances of increased spirituality and mysticism, including the sense of presence, during his out-of-body states. This subject regularly experienced, not only the presence of a person which was not physically visible, but also sensing the presence of an overwhelming force, which usually came from an unexplained source in the form of sensory auditory hallucinations; distortions in form/size/shape, as well as sensory flooding (Sellers, 2019).

Feeling the presence of both energy and/or guides/helpers is a common experience for OBErs. A series of interesting out-of-body experience questionnaires were administered by Twemlow et al. (1982). The questionnaires pertained to the nature and impact of OBEs on 339 participants who claimed to experience an OBE. The questionnaires employed over 220 queries pertaining to conditions existing at the time of the OBE, its phenomenology and nature, as well as the impact of OBEs on the lives of the experiencers. The study revealed interesting information on sensing energy or guides during the OBEs of the respondents. More specifically, the study reported over 50% of the OBErs (total of 339) felt a sense of energy during their OBEs and more than 20% felt the presence of guides or helpers. Twemlow's study further reported subjects being aware of the presence of non-physical beings during their OBEs. Some of them felt that the beings were people close to them, who had died.

Similarly, in her case study, Sellers (2017) reports on an OBEr who, when out-of-body, is able to perceive information from the deceased, and entities of different natures as well as spirits, at the level of exchange of instant thoughts (telepathy). I posit that telepathy is a natural process of communication that is somehow inbuilt within the human biology.

Telepathy includes both electromagnetic processing, which is built on oscillation, as well as vibrational processing, based on audible as well as inaudible sound.

In addition, Greyson's NDE scale (Greyson, 1983) - the Item Analysis of Preliminary NDE questionnaire, showed that 47% of NDErs encountered mystical or unearthly beings. Interestingly, the same amount of NDErs reported the absence of mystical or unearthly being during their NDE. Furthermore, when asked whether they saw deceased or religious spirits, 26% of the respondents said that they did, while 62% replied they did not.

In his study, Hoepner et al. (2013) investigated the anomalous experiences of subjects during IAP, which mostly included simple partial autoscopic seizures. The study showed that none of the AP experiencers indicated that they encountered mystical beings or presence, or saw deceased or religious spirits.

Sounds

Hearing unusual or distorted sounds, voices and other auditory phenomena, is another frequent characteristic of extraordinary experiences such as OBEs.

Sellers, in her case study (2017), identified the following characteristics of the most frequent noises and sounds associated with OBEs:

- Sounds similar to buzzing bees, or flies
- A deep droning sound, similar to the sound of singing the Indian Ohm mantra
- Sounds similar to rattling, wheezing, ticking, or a powerful roar
- The sound of bells or sounds of metal objects colliding with each other.

This seems to correspond with the Twemlow et al. study (1982), which implied buzzing, as well as roaring, sounds as the most frequent sounds heard during OBEs of the respondents. More specifically, in the section on the nature of OBEs, 71 respondents (out of 339 total) reported hearing noises in the early stages of their OBEs, while the most common noises were buzzing, roaring, music, or singing.

Similarly, Greyson's preliminary NDE scale included the question pertaining to hearing "meaningful sounds" during NDEs (Greyson, 1983). 22%, out of 74 respondents, reported the presence of meaningful sounds during their NDEs, while 64% felt meaningful sounds were absent. In addition, both CAPS (2006) as well as the Twemlow OBE Scale (1982) included several questions pertaining to hearing sounds/noise during instances of anomalous perception. CAPS included questions pertaining to experiencing sounds and noises in the following 5 (out of 9) categories:

Inherently Unusual or Distorted Sensory Experience, Changes in Levels of Sensory Intensity, Having a Non-

Shared Sensory Experience, Sensory Experiences from an Unexplained Source, and Verbal Hallucinations.

Interestingly, some of the CAPS items related to hearing sounds/voices/noise, as a result of anomalous experience, are highly relevant to some of the OBE phenomenology pertaining to auditory sensations. Based on my research of a spontaneous OBEr as well as my own first-hand accounts, I posit that the following CAPS items meaningfully relate to OBE auditory phenomenology:

Noticing that sounds are much louder than they normally would be, or are distorted in strange or unusual ways.

Hearing voices saying words or sentences when there is no one around that might account for it.

Hearing sounds or music that people near you don't hear.

Hearing noises or sounds when there is nothing to explain them.

Lights, colors

Seeing light in different shapes and colors is a common phenomenology reported by OBErs, NDErs, as well as individuals belonging to both healthy as well as pathological population who experienced different anomalous experiences. For example, Ring (1980) posits that one of the NDE stages is seeing a brilliant light, as well as entering a different realm or world of existence, with the help of the light. Similarly, Twemlow et al.'s OBE study (1982) reported OBErs seeing a brilliant white light. 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. Greyson et al.'s (1983) study in the Item Analysis of Preliminary NDE questionnaire showed that 43% of 74 respondents (with an 81% response rate) reported unnaturally brilliant light during their NDE. In addition, Sellers (2017), in her study, 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 during his OBEs 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 plasma, lights, colors, or different shapes of light and sound coming from an unidentified source. Sellers (2017) 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 OBE takes place at night and in complete darkness, while the experiencer often sees bright vibrant

colors or plasma-like shimmering lights accompanied by sounds.

Moreover, the question pertaining to the ability of subjects to see or feel surrounded by a brilliant light was presented to patients in the study of Hoepner et al. (2013). Interestingly, 2 out of 5 patients experiencing IAP (cerebral lesions) replied yes to the question. The first patient experienced autoscopy, while the second patient was an OBE experiencer. Hoepner et al.'s (2013) study further revealed that experiences of subjects during autoscopic phenomena, which mostly included simple partial autoscopic seizures, had common features with NDEs.

It is worth noting that Hoepner et al. used Greyson's NDE scale to study their subjects' IAP. 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.

Hoepner et al. (2013) report on a total of 5 subjects who experienced IAP, out of which 4 reported experiencing OBEs, and one subject reported autoscopy. 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. I posit that not only IAP, but also OBEs, as well as different NHI contact modalities can cause semiology and phenomenology similar to that experienced during a NDE.

This seems to be in line with the report of the case of the OBEr who regularly experiences dark tunnel episodes during his OBEs (Sellers, 2017). Thus, tunnel episodes are not prerequisites of experiencing a NDE. This further seems to be in line with Twemlow et al. (1982), who similarly reported as many as 25% of OBErs felt a sense of being in a dark tunnel with a light at the end of it during their OBEs.

Could the tunnel experience be occurring not only during the process of dying, but also as an organic part of other phenomena, such as time travel or quantum tunneling? Research on NDEs, conducted by Ring (1980), suggested that

out of 102 who reported being near 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 the tunnel, in NDEs occurring during suicide attempts, was missing (Ring, 1980).

Furthermore, it is worth noting that a study conducted by Facco (2012) reported a case of a NDE under normal, that is non-life-threatening, conditions. The study presents a case of a male, who underwent an extraordinary anomalous experience accompanied by many of the characteristics common to NDEs, with the exception that this experience occurred under normal, non-life-threatening conditions. In other words, the individual, who belonged to the healthy population, experienced a NDE under normal conditions, while not experiencing a near-death state. Facco's study implies that one does not have to be dying in order to experience a NDE. This hypothesis seems to be in line with Seller's study (2017), which presents a case of an individual who, during his OBEs, regularly experiences elements typical for NDEs. As reported earlier in this study, the individual who has spontaneous OBEs every day, but has never experienced a NDE, replied yes to all items on the Greyson NDE scale. The most frequent NDE items experienced by the OBEr were as follows: speeding up thoughts and time, experiencing feelings of harmony or unity with the universe, experiencing brilliant light, feelings of separation from the physical body, and experiencing scenes from both past and future.

Time, space, and body distortion

Anomalous perception, such as time, space and body distortion, has been reported to occur during altered states of consciousness triggered by different paranormal experiences such as OBEs, NDEs, mystical, religious experiences, or shamanic journeys to name a few. Greyson (1983) revealed that the majority of respondents/NDErs (64%) replied that time stopped or lost meaning during their NDE. However, according to Greyson (1983), the item on time only weakly correlated with the rest of the preliminary NDE questionnaire items. Further, in the Item Analysis of Preliminary NDE questionnaire, Greyson (1983) reported 22% of NDErs felt events seemed instantaneous. Similarly, the CAPS (2006) study in

the temporal lobe subcategory asked whether subjects' experience of time ever changed in a dramatic way. It seems that time distortions are often associated with temporal lobe disturbances. Hoepner et al. (2013), in their study, reported two patients, out of five with an epileptic dysfunction close to the TPJ region, felt time speeded up or slowed down when experiencing IAP, such as autoscopy and OBE.

Interestingly, 107 subjects/OBErs in Twemlow et al.'s study (1982), reported feeling a change in time sense, while 220 reported they did not. Moreover, a regular OBEr reported the flow of time as non-existent during his OBEs with the experience of time moving forward and backward at once (Sellers, 2017).

It is further worth mentioning that time and space distortions were implicated in the research on neurophysiology of meditation. A study on alterations in the sense of time, and space and body, connected to mindfulness meditation shows mindfulness meditation induced feelings of timelessness, as well as spacelessness, in the subjects of the study (Berkovich-Ohana, Glicksohn, Goldstein, and Ziderman, 2013).

Persinger (1974), in his study, likewise concludes that paranormal experiences cause distortions in physical time. The study of Berkovich-Ohana et al. (2013) further revealed possible implications of right temporoparietal junction (TPJ) in the distinct sensations of time and space distortion. This is intriguing as TPJ on both sides of the brain is implicated as cause of possible OBEs in many studies. In addition, according to the study conducted by Messier and Smith (2014), the left TPJ may be the cause of eliciting OBEs in a woman who belonged to the healthy population. She was able to elicit OBEs at will, during which she found herself floating above her physical body. According to Gloor (1990), distortions in time are a common feature during temporal lobe seizures.

Time and space distortions seem to frequently occur during the anomalous experiences mentioned above. In addition to these, recent research has revealed distorted own body perceptions are similarly a frequent feature occurring especially during OBEs, or mystical and religious experiences, thought to occur during heightened temporal lobe disturbances. According to Brugger and Regard (1997), who used phenomenological criteria for the definition of autoscopic phenomena, phenomena associated with autoscopic perception presented challenges to body ownership, embodiment, and demonstrated distorted own body

perceptions. Distortion of own body perception is further implied by Sellers (2015) in a description of an etheric hand seen by an OBEr during an OBE:

> I remember I tried to raise my hand. However, I could not see any hand. What I saw was only the contours of my hand. It looked cloudy, shadowy, and I knew it was not a hand made of physical matter, flesh, muscles, and tissues. It was a phantom, an etheric double hand.

In addition, Sellers (2017) reported the following anomalous distortion of surroundings from the point of view of an OBEr:

- Distorted vision of the surrounding environment
- Wave-like distorted motion of surrounding objects
- Changes of shapes of surrounding objects in unusual ways.

This further seems to be in line with the description of the distortion of the external world as experienced by an OBEr (Sellers, 2015):

> In the state of what I would call a waking sleep, I often saw the walls moving in the room from side to side. With them, everything else in the room started to move. I felt the space around me actually change its shape like it was a banding. Objects around me were no longer material, dense, physical objects. They shape-shifted into some sort of waves, or wavy lines moving from side to side and shimmering. I could feel everything was vibrating or pulsating. Things around me were losing their shape, geometry, density, and mass turning into wavy, curly objects. Furthermore, I felt something was happening to time itself. It felt different. It was passing by at a different rate and speed from what I was used to under normal conditions. The pulsing of time felt different within the inner part of myself.

The above description is further consistent with the experience of the representatives of the psychologically normal population who, in the subcategory on distortion of form of own body and of external world in the CAPS study (Bell et al., 2006), reported experiencing body-distortion phenomenon. The study revealed that respondents experienced the sensation that their body, or a part of it, changed shape. Furthermore, the study conducted by Braithwaite et al. (2011) showed respondents reporting the appearance of things or people seemed to alter in a puzzling way, such as distorted shapes or sizes or color. Interestingly, the study further showed that in the CAPS subcategory on body-distortion the OBErs scored significantly higher scores than non-OBErs.

Separation of consciousness from the body floating in space

Another common feature experienced by OBErs, NDErs or IAPErs, is separation of consciousness from the physical body or floating in space.

There are numerous reports of individuals, belonging to both the non-pathological as well as pathological population who experienced their self separated from their body. Specifically, Braithwaite et al's study (2011) reported that 6 out of 17 OBErs either saw their own body separated from the physical body, or another form of body representation during their OBEs. Moreover, all 5 IAP patients, studied in Hoepner et al.'s study (2013), reported experiencing separation from their physical bodies while experiencing IAP. All 5 responded yes to the following question: "Did you feel separated from your body?" (Note that the question was originally taken from the Greyson NDE scale.) Separation from body, as well as detachment from surroundings, was further reported by Greyson (1983) in his NDE scale study.

In addition, Twemlow et al. (1982) not only reported on experiencing the separation from the physical body experienced by the respondents, but more than half of the experiencers (over 60% of OBErs out of the total of 339 respondents) were aware of an out-of-body figure similar to a physical body, or felt their own out-of-body figure in the same environment as their physical body.

Interestingly, CAPS subjects, in the category on temporal lobe disturbance, reported a feeling of being uplifted, as if driving or rolling over a road while sitting quietly. The CAPS study further reported instances where subjects experienced a sensation that their body, or at least a part of it, changed or changed shape without there being a separation of the self from the physical body (Bell et al., 2006).

In addition, a study conducted in 1941, revealed that upon electrical stimulation of the right superior temporal gyrus in epileptic patient, the patient perceived a sensation of floating (Penfield, 1941 as cited in Tong, 2003). Similarly, a study conducted by Blanke et al. (2002) revealed an epileptic patient reporting floating close to the ceiling after electric stimulation of the patient's angular gyrus in TPJ, as well as displacements of whole body. In addition, Bos et al. (2016) indicated an implication of the left, as opposed to the right, TPJ in eliciting OBEs in a patient who underwent craniotomy while awake. The patient reported a floating sensation after stimulation of her left

TPJ. Association of OBEs with floating sensations was further implicated in the study conducted by Blanke, Halje, and Lopez (2008). Interestingly, floating sensations were also reported by NDErs. Research on NDEs conducted by Ring (1980) revealed that NDEs included elements similar to those occurring during OBEs, such as detachment of the physical body, or floating in space.

In addition, literature reporting on the phenomenon of OBEs includes the sensory perception of floating in an elevated position as one of the frequent features accompanying the phenomenon of OBEs (Blanke et al., 2002; Bos, Schouten, Smits, Spoor, & Vincent, 2016; Messier and Smith, 2014; Sellers, 2017; Monroe, 1971).

OBEs, NDEs feel real

NDEs are often associated with OBEs, especially due to the fact that a NDE is often accompanied by an OBE. The study conducted by Mattingly, Nelson, and Schmitt (2007) revealed that 76% of NDErs suggested they also experienced an OBE. The study conducted by Greyson (2007) confirmed that some individuals who experienced NDEs also experienced OBEs.

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 et al., 2013). Similarly, enhanced reality (Anzellotti et al., 2011), along with the sensory perception of floating (Monroe, 1971), as well as a profound feeling of being outside of the body (Messier and Smith, 2014), are considered among the main features of OBEs. The element of experiencing vivid reality during OBEs is further suggested by the majority of OBE researchers (Brugger, 2002). Furthermore, feelings of enhanced reality are reported to be a vital part of the OBEs of a subject described by Sellers (2017). The subject reported his OBEs were "extremely real, with extremely vivid settings, highly intensified emotional perception, as well as intensified sensory input." Based on this, it could be suggested that OBEs, and NDEs may share a common element of "experiencing vivid or enhanced reality.

Twemlow et al's (1982) study showed that more than 45% of the respondents felt that their perception during an OBE was extremely vivid and real. Specifically, over 90% of the respondents replied yes to the question asking whether their OBE experience felt more real than a dream. Interestingly,

the respondents emphasized their experience was definitely an OBE and not a dream. They further reported, with certitude, that they were aware of the difference between a dream and an OBE. A similar question, pertaining to the intensity of the experiences, was asked by the Greyson NDE scale. The majority of respondents replied that their senses were either more vivid than usual, or atypical/ambiguous, when experiencing a NDE (Greyson, 1983). Similarly, Braithwaite et al.'s (2011) study revealed that 4 out of 17 subjects, who experienced OBEs more than once in their lives, reported vivid OBEs. Hoepner et al.'s study (2013) showed 3 out of 5 patients, experiencing IAP, reported their senses were more vivid than usual while experiencing an OBE or autoscopy. This is in line with previous studies reporting on a hyperreality of OBEs. Blanke, Brugger, and Mohr (2006) reported that OBEs feel very real to experiencers while they undergo them.

Conclusion

The study investigated connection and possible phenomenological as well as semiological similarities among anomalous experiences such as OBEs; NDEs; IAP and other abnormal experiences related to altered states of consciousness (ASC).

The phenomenology as well as semiology of different forms of anomalous perceptual experiences both in the healthy as well as pathological population suggests that there are multiple diverse factors contributing to anomalous cognition and perceptual experience. They involve different modes, are accompanied by different phenomenological and semiological elements, and have distinct features depending on the psychological, physiological, as well as neural mechanisms that are not well understood.

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