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Psychology of Mystical Experience: Muḥammad and Siddhārtha

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Abstract

A comparison between Muḥammad and Siddhārtha's psychological states are made to identify how they had their mystical experiences and, how their presuppositions and personalities shaped their interpretation of these experiences. Muḥammad's mystical experience appeared to be based on an altered state of consciousness.

Siddhārtha's teachings include that one must not have blind faith and remain open to various truths. These teachings may reflect that he was high in openness to experience, which may have fortified him from becoming delusional.

While mystical experiences may have pathological overlaps, they could be categorized in a similar way to psychological states. Yet, mindful presuppositions and personality traits, especially from within openness to experience spectrum, are what make perceptions of these experiences diverse.

Keywords: Buddhism; Islam; mystical experience; personality; psychology; religious experience

1. Introduction

This article looks into the descriptions of mystical experience by Muḥammad, according to Muslim tradition, when he first described receiving divine revelations, and compares it with the experience of Siddhārtha, also known as the Buddha, according to the Pāli canon. A comparison of these experiences may suggest that they have a similar neuropsychological basis, but that the individual's presuppositions and personality causes a difference in the interpretation of these experiences.

Robert C. Zaehner (1957) divided mystical experience into different categories: panenhenic, monistic, and theistic mysticism. The panenhenic experience is when one

experiences oneness of and with nature. Monistic is when one experiences unity transcending space and time. Theistic experience is a duality, when one experiences the other, but continues to feel distinct. Zaehner believed theistic mysticism is more advanced than monistic and panenhenic experiences because, he argued, they are self-centered: a person wants to be a part of the other. Ninian Smart (1965) argues against Zaehner's thesis in that mystics, regardless of their doctrine, share the same experience but interpret it differently. As such, the mystical experience in and of itself would perhaps be the same. Although Smart is aware that he cannot prove his own thesis, he concludes that at least his argument finds Zaehner's differentiated experiences unsubstantiated.

Steven Katz (2000, 3) has argued of two approaches in the study of mysticism: an essentialist model and a contextualist model. He defines the essentialist model as: "(a) mystical experience was essentially independent of the sociocultural, historical, and religious context in which it occurred and (b) all mystical experience, at its highest and purest level, was essentially the same" (Katz 2000, 3). The contextualist model argues that presuppositions, beliefs, and expectations shape the mystical experience (Katz 1978; 2000, 3–4; 2013). If, in accordance to the essentialist model, there is such a thing as a mystical experience in its highest and purest form, then such a form perhaps can be understood by the organ that perceives such experiences, the brain. As such, a neuropsychological analysis might be appropriate. Yet, just like different types of so-called mental disorders are categorized based on the symptoms and not necessarily the dopamine level or the nerve firings and mis-firings, perhaps different mystical experiences may also be categorized accordingly. Not that pathologically they are essentially different, but simply because the scientific approach is still emerging of what exactly happens in the neuron level. As such, one cannot say that the experience of bipolar disorder is equivalent to that of schizophrenia. Though they are different, they do have certain pathological overlaps (Daban et al. 2006;

Schretlen et al. 2007; Lui et al. 2015; Kuswanto et al. 2016; Howes et al. 2018). In a similar neuroscientific theory is that mystical experiences may be categorically different, but not without some sort of overlap necessarily.

Within a psychological background, how psychosis and delusions are interpreted by those who experience them are heavily dependent on their presuppositions and cultural backgrounds (Larøi et al. 2014; Kirmayer and Ramstead 2017; Powers, Kelley, and Corlett 2017; Willard and Norenzayan 2017; Tan, Fletcher, and Rossell 2019). Therefore, even if mystical experiences may have pathological overlaps with one another, their interpretation would be highly likely formed by the person's presuppositions, beliefs, and expectations. The essentialist model of mystical phenomenology cannot have a broad and general definition of some sort of highest and pure form of mystical experience, just as one cannot say there is some sort of highest and pure form of so-called mental disorders. Indeed, there are overlaps, but yet can be categorically different. Though mystical experiences may be categorized on a pathological level, how they are perceived and interpreted are highly dependent on presuppositions and beliefs in a way that is not very different than how hallucinations or delusions are interpreted by individuals who experience some sort of psychosis.

Hence, an essentialist model is too broad, but the contextualist model is too constructivist that it may overlook the neuropathological overlapping essence for mystical experiences. With advances in neuropsychology, mystical experience may be observed as something that is perceived in the mind by the functions of the brain (Persinger 1987; D'Aquilli and Newberg 1993; Urgesi et al., 2010; Cunningham 2011; McNamara and Butler 2013; Cristofori et al. 2016). Neuropsychology allows us to demystify mystical experiences as biological changes in the brain that permits the mind to perceive these so-called mystical experiences. However, it is important to note that there are definitely limitations for someone who has not experienced the subjective experiences to understand exactly what it is that was

experienced. Even when different individuals receive the same stimulus, how it is experienced in their consciousness may be totally different (Chalmers 1995).¹ Nonetheless, whatever these mystical experiences may be, a biological causation, itself perhaps caused by physiological and non-physiological factors, such as stress, anxiety, food or sleep deprivation, prolonged mindful meditations, or even hallucinogens, may be traced through our understanding of neuropsychology. Reaching an altered state of mind that results in the subject perceiving what may be called a mystical experience may not be completely dissociated with a psychotic experience (Heriot-Maitland 2008). Perhaps everyone has the ability to reach this altered state, but individuals who are within the schizotypal spectrum may have a better chance in reaching these states (Heriot-Maitland 2008).

This means that some individuals may be genetically predisposed and, with the right environment, may be able to have these experiences, suggesting that perhaps such experiences are physiologically sustained in the human brain. This is not to discredit the “spiritual” nature of these experiences, just as any human experience perceived by brain neurons should not be discredited regardless of the cause of the stimuli. Although it is very difficult to categorize altered states of consciousness discretely, in that not every experience is necessarily similar, it may be possible to broadly expect that the neurochemicals of the brains are somehow firing in such a way to cause the mind to perceive something mystical, such as the feelings of transcendence or having visual and/or auditory hallucinations that might be interpreted of spiritual nature.

Michael Thalbourne, a parapsychologist (one who studies paranormal phenomena), and his colleagues use the term “transliminality” to describe the trait of individuals who are susceptible to psychological imagery, ideation, affect, and perception originating in the

¹ I am indebted to Susan Matheson to point this out to me.

unconscious and/or the external environment (Thalbourne and Delin 1994; Thalbourne et al. 1997; Thalbourne and Delin 1999; Lange et al. 2000; Thalbourne and Houran 2005; Thalbourne and Maltby 2008). Transliminality appears to be slightly positively correlated with the personality trait of openness to experience (Thalbourne 2000), from within the Big Five personality traits: openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism (Costa and McCrae 1992). This paper looks into the relationship between three personality traits: openness to experience, conscientiousness, and agreeableness and how they reflect in the interpretive nature of mystical experience.

Attempting to psychoanalyze the descriptions of Muḥammad and Siddhārtha's states of mind during the time of their mystical experiences from traditional historical accounts is not without flaws. The reliability of these historical accounts may always be brought into question. For the purpose of this study, it will be assumed that if these historical narratives are true, then assessing a psychobiography of these individuals may be possible (Runyan 1982; Alexander 1988). However, due to limitations on the accuracy of these stories of these figures' childhood and life (van Os 2012), I will not use the stories associated with the childhood and life of Muḥammad and Siddhārtha to determine the cause of their psychological state of mind during their mystical experiences because of possible inaccuracies in these stories. The majority of these stories are unknown to modern historians, and they may consist of more legend than factual accounts. I will only use the traditional accounts of Muḥammad and Siddhārtha during their mystical experiences. As such, I will not consider what kinds of childhood traumas and upbringing might have predisposed them to mystical experience. I will only evaluate the narratives of the mystical experiences or symptoms they appear to have had during such an experience.

Since Muḥammad and Siddhārtha's experiences correlate with our modern scientific knowledge of the psychological basis of mystical experience and symptoms of an altered

state of consciousness, these narratives may either be true or whoever made up the descriptions of these narratives might have themselves achieved such mystical experiences and related their subjective experience as that of these religious figures (Galadari 2018, 2). In other words, the biographers, who narrated what happened to Muḥammad when he first claimed to receive revelation while in a cave or what happened to Siddhārtha when he first claimed to have reached enlightenment, *may* have themselves experienced these same things or saw or heard of individuals who had experienced them and retroactively suggested that this might have been what Muḥammad and Siddhārtha also experienced (Galadari 2018, 2).

By applying this restricted method of psychobiography, it is desired that it will reduce the drawbacks of psychobiography, as outlined by William Runyan in *Life Histories and Psychobiography* (1982) and by Jacques Szaluta in *Psychohistory* (1999). For the purpose of this study, a neuropsychological aspect of mystical experience is explored instead of a psychoanalytic one, as psychoanalysis may comprise of pseudoscience.

2. Mystical Experience and the Mind

Mystics from various religious backgrounds around the world have claimed to have spiritual experiences (Almond 1982). Religious experience has been studied by several psychoanalytic schools, such as those inspired by Sigmund Freud and Carl Jung.² In addition, transpersonal psychology has focused in what is called a “spiritual emergency” that causes a person to have symptoms similar to a psychopathological nature, when the experience may only be superficially psychotic in appearance (Lukoff 1985; Lukoff 1998; Phillips, Lukoff, and Stone 2009; Grof and Grof 2017). However, although there could be individuals who

² One of the earliest studies in modern psychology about religious experiences is James (1902). Also see Proudfoot (1985) and Freud (1933). Carl Jung devoted his life and works to understanding the psychology of mystical experiences; examples of his works include Jung (1933; 1938).

perceive things that appear hallucinatory in nature, when in reality is not (Lukoff 2007), such as a religious person who feels being directed by God or possessed by a demon, or talking in angelic tongues, the symptoms that have allegedly been experienced by Muḥammad appear to be more pathological. After all, a spiritual emergency may sometimes cause stress on the brain that causes a pathological issue, such as psychosis (Goretzki, Thalbourne, and Storm 2009; Goretzki, Thalbourne, and Storm 2013).

Perhaps “spiritual emergency” and a psychotic-like state of consciousness is not very different, except in nomenclature. A mystical experience could very much have been a psychotic-like state that causes a spiritual transformation (Nixon, Hagen, and Peters 2009). They can provide epiphanies, because the moment of epiphany is perhaps when the mind starts to link things it had experienced and make sense of it (Miller and C’de Baca 2001). With modern understandings of the brain’s neuroscience and cognitive functions, religious experience has become a widely studied area in medicine (Beit-Hallahmi and Argyle 1997; Paloutzian and Park 2013).

There is some, though inconclusive, evidence that the brain structure correlates with certain personality traits of the Big Five (DeYoung et al. 2010; Li et al. 2015). In other words, people with certain personality traits may have differentiated volume of certain brain regions, and these findings are only the beginning of a biological basis to explain personality traits (DeYoung et al. 2010; Li et al. 2015). However, the cause is yet to be determined; it is still unknown whether the trait causes the brain structure to change or the brain structure causes the trait (DeYoung et al. 2010; Li et al. 2015). As such, this field is still in its infancy giving us much hypotheses with few theories. Nonetheless, the future may further unshackle the neuroscientific basis of personality traits, disposition to altered states of consciousness, and ultimately mystical experience. Neuropsychological studies may help us understand religious experiences better (Fingelkurts and Fingelkurts 2009, 318). They allow us to

understand how religious experience affects the mind, brain, body and behaviour (Newberg and Lee 2005, 486).

Because many religious experiences tend to occur when a person is at a heightened emotional state or in psychological distress (Kohls and Walach 2007), perhaps even in a state of spiritual emergency (Winkelman 2002), it arouses the limbic system, which might be the root cause of such experiences (Joseph 2001; Saver and Rabin 1997). There is a genetic link between psychosis and creativity (Kéri 2009; O'Reilly et al. 2001). The limbic system(s) becomes hyperactive under stress causing low latent inhibition (LLI) (where a familiar stimulus is treated as if it were unfamiliar) to those who are genetically predisposed (Lodge and Grace 2011). Consequently, creatures with LLI and high intelligence become highly creative, increasing their chances of survival (Walder et al. 2014), causing this trait to be inherited to future generations.

In the last century, tests were conducted on individuals being administered with psychedelic drugs causing them to have drug-induced mystical experiences. The individuals having such psychological experiences were then confronted with the intellectual exercise of interpreting their experiences. Individuals with different presuppositions and personalities appear to have interpreted their experience somewhat differently, even if the experience was mediated by the same psychedelics (Pahnke 1969). Keep in mind that mystical experiences, whether mediated through psychological distress or psychedelics, also appear to change the neuronal mapping of the brain and, therefore, sometimes change the subject's personality (Stanislav 1973; Beauregard and Paquette 2006; Tagliazucchi et al. 2014; Bouso et al. 2015). Hence, this makes the issue of "spiritual emergency" more of a renaming for perhaps a sub-category of an altered state of consciousness. There is evidence that mystical experiences increase the personality domain of openness (MacLean et al. 2011), which perhaps is the

reason why mystics from across various traditions are typically very open to different traditions and hold beliefs that diverge from mainstream thought.

3. Psychology of Muḥammad's Mystical Experience³

According to the traditional biography, Muḥammad meditated in a cave in solitude.⁴ He withdrew from friends and family. He might have also eaten meagerly or fasted during his time in the cave.⁵ He did not sleep much while in the cave and perhaps even less once he returned, as evidenced in the traditional interpretation of Qur'an 73:2–4. Withdrawal from family and friends, loss of appetite, and sleep deprivation could be precursors to a psychotic episode (Yung and McGorry 1996). After a few nights, Muḥammad had an experience that caused him to be extremely anxious returning to his wife, according to the traditional interpretation of Qur'an 74:1.⁶ He even became suicidal, according to the traditional account, and wanted to throw himself from the top of the mountain, thinking he might have been possessed by a demon. This might suggest a depressive mood. Nonetheless, anxiety is another symptom of a psychotic episode (Yung and McGorry 1996). Muḥammad appears to experience what a modern psychiatrist would diagnose as an altered state of consciousness. He hears a voice speaking to him and giving him direct commands,⁷ which is common for an auditory hallucination. He also sees an angel,⁸ which may be described as a visual hallucination.⁹ He infers from this experience that he is a special person, a messenger from

³ This section relies on excerpts on the mental state of Muḥammad to show him having low latent inhibition and above average intelligence, as argued in Galadari (2018, 8–16).

⁴ See Ibn Ishāq (d. 151/768) *Sīrah*, 120–121; also see Ibn Hishām (d. 213/833) *Sīrah*, 1:239–240.

⁵ We do not have conclusive evidence of Muḥammad eating less in the cave, but his seclusion might make it likely. This is also the opinion of Ibn 'Āshūr (d. 1973) (1984, 2:172).

⁶ Al-Ṭabarī (d. 310/923) (2000), 23:7–9.

⁷ Ibn Ishāq, *Sīrah*, 121.

⁸ Ibid..

⁹ Auditory and visual hallucinations are also found in the writings of Ezekiel (a prophet from the Hebrew Bible). As Muḥammad shows that God commands him to do things according to the Qur'an, so does Ezekiel show that God commands him to do things. The modern diagnosis of Ezekiel's state of mind is a case of schizophrenia (Stein 2010).

God.¹⁰ This description might be consistent with a grandiose delusion,¹¹ although it cannot be said that Muḥammad suffered from delusion. A delusion is typically defined as having an unwavering belief even when provided with evidence contradicting it (American Psychiatric Association 2013). Muḥammad, however, was unsure of the meaning of his experience, and only appears to have confirmed that it is of divine origin after his wife assured him and took him to her uncle, who also confirmed its divine origin. If he was presented with evidence against its divine origin, he might have actually accepted that, because he did appear to struggle with doubt of what exactly he experienced, at first, trying to make sense of his experience. Therefore, he might not have been truly deluded. Besides, Muḥammad appears to be able to cope with his experiences by having a strong social support from some family and friends, which are part of a strong coping mechanism (Mohr, Borrás, Betrisey, Pierre-Yves, Gilliéron, and Huguelet 2010; McFarlane 2016).

According to the traditional biography of Muḥammad, he did not sleep so much at night, especially in the immediate aftermath of this experience, based on the traditional interpretation of Qur'an 17:79 and 73:2–4. Decreased need of sleep is a symptom of mania that may be linked to the grandiosity. Some of Muḥammad's conditions during the prodromal

¹⁰ Similarly, Ezekiel also interprets his hallucinations with grandiose delusions as stated by Broome (1946).

¹¹ The Diagnostic and Statistical Manual of Mental Disorders version 5 (DSM-V) published by the American Psychiatric Association (APA) states that for a schizophrenia diagnosis two or more of the following symptoms must exist, each present for a significant portion of time during a one-month period, with one of the first three a requirement: a) delusions, b) hallucinations, c) disorganized speech, d) grossly disorganized or catatonic behaviour, e) negative symptoms, such as diminished emotional expression. Muḥammad apparently had delusions and hallucinations. However, Muḥammad did not experience other symptoms such as social/occupational dysfunction or negative symptoms. Hence, he might not be diagnosed with schizophrenia, have had what is considered a not-otherwise-specified (NOS) psychotic disorder. Frank Freeman (1976) also excludes a schizophrenia diagnosis due to Muḥammad's leadership ability. Although Freeman (1976) considers epileptic seizures as the likely diagnosis of Muḥammad, I find LLI coupled with high intelligence as the most likely diagnosis, where Muḥammad entered an altered state of consciousness (see Galadari 2018). Similarly, Eric Altschuler (2002) excludes schizophrenia as a possible diagnosis for Ezekiel since schizophrenia causes diminished social functioning. He considers temporal lobe epilepsy as a possible alternative. However, I also consider Ezekiel a case of LLI coupled with high intelligence, similar to Muḥammad (Galadari 2018).

phase are typical to evolve to a full blown altered state of consciousness (Joseph 2001, 129).¹²

In the aftermath of this experience, Muḥammad starts articulating words that seem creative, but obscure in meaning. The words appear to be unrelated in its outer expression. Krippner et al. (2010, 7) state, “For example, a person diagnosed with a mild thought disorder might write something viewed as gibberish in a mental hospital; but the same creative product might be viewed as beautiful poetry in a different context.” Muḥammad would be diagnosed with an altered state of consciousness by a modern psychiatrist.¹³ However, Muḥammad was not psychotic, as he was a highly functioning individual. Creativity and proneness to psychosis share the same genes (Barrantes-Vidal 2004). Above average intelligence may allow individuals prone to psychosis become highly creative (Eysenck 1995; Fink et al. 2012).

LLI together with above average intelligence are ingredients of creativity (Benedek et al. 2012; Carson et al. 2003; Drus et al. 2014). People usually have latent inhibition (LI), in which a pre-exposed stimulus takes more time to be associated with new meaning. However, individuals with LLI treat a familiar stimulus as they would treat a new stimulus easily redefining the stimulus and give it a new association. Individuals with average or below average intelligence together with LLI may be unable to cope with the influx of stimuli and, therefore, struggle with schizophrenia (Braff 1993). Conversely, individuals with above average intelligence and LLI might have the capacity to manage the large flux of stimuli allowing them to make creative novel associations (Carson et al. 2003; Carson 2011;

¹² Also see: d’Aquili and Newberg (1993); de Ropp (1989); Frazier (1950); James (1902); Joseph (1998; 1999a, 1999b; 2000); Lehmann and Myers (eds) (1993); Malinowski (1954); Neihardt (1932); Smart (1969).

¹³ Muḥammad’s mental state may be comparable to that of Abraham, Moses, Ezekiel, Jesus, and Paul who some modern psychiatrists studied and suspect to have had psychotic disorders (van Nuys 1953; Murray et al. 2012).

Benedek et al. 2012; Maçkali et al. 2014). The temporal lobes, frontal lobes, and limbic system(s) activate dopamine levels that decrease LI promoting creativity (Flaherty 2005).

Metaphor may be mastered by individuals with a combination of LLI, high intelligence, and high working memory (Chiappe and Chiappe 2007). Alice Flaherty (2005) states, “Metaphoric thought is nonetheless vital for creativity because metaphor depends on detecting analogies between phenomena previously thought unrelated.” Consequently, individuals with LLI have a high aptitude for symbolic creativity, either by producing or interpreting them. The loose semantic association held by them is what makes paranoid individuals read hidden meanings in words they encounter. Some paranoid individuals with schizophrenia may see double meanings in much of every cue. This constant bombardment with stimuli making their brains go into overdrive is what could drive their minds into psychosis, since they are unable to manage the flux. Contrariwise, individuals with above average intelligence may have the ability to handle the situation better by ignoring irrelevant stimuli (Carson et al. 2003).

The symptoms of Muḥammad might indicate that he was in an altered state of consciousness that includes few visual but mostly auditory hallucinations. While he strongly believed that that he is chosen by God to become a prophet, it may not necessarily have been a delusion, as discussed earlier. He might have rejected the idea of being specially chosen if everyone discredited it. Therefore, Muḥammad may not have suffered from psychosis, but his altered state of consciousness allowed him to naturally produce the Qur’an (Galadari 2018).

4. Psychology of Buddha’s Mystical Experience

There are difficulties in understanding the historical account of Siddhārtha Gautama, who was later known as the Buddha. Etching his life from all the stories and legends

associated with it is not easy. There are several traditions based on accounts of the historical Siddhārtha Gautama that range from Eastern Buddhist traditions to the Manichaean tradition in the West (Bechert 1991). Although the topic of this article does not focus on the dating of the historical Siddhārtha but rather on his actual story during enlightenment, trying to understand his psyche from among the different narratives is very difficult to untangle the historical account from legends. For the purpose of understanding the psychology of the historical Siddhārtha, this article analyzes his story from Hans W. Schumann, *Der Historische Buddha (The Historical Buddha)* due to it re-constructing a chronological order of his life from various sources.¹⁴ Although the historical account may be inaccurate, as the historical account of any religious figure from the ancient past can be inaccurate, it is perhaps a portrayal from which we can make a broad psychological diagnosis if not an exact one. Yet, I agree with and even encourage suspicions pertaining to that. As such, the assumption that will be used is perhaps best described as the understanding of the psychology of Siddhārtha, as portrayed in Schumann's book. This article will not psychoanalyze Siddhārtha based on Schumann's full biography because the full biography, as with the biography of any religious figure, can contain a variety of legends. Only the moment Siddhārtha attained enlightenment is analyzed.

According to the traditional account, Siddhārtha was born in Lumbini and lived in Kapilvatsu for the first twenty-nine years of his life (Schumann 2004, 6). He apparently had a very curious mind, which lead him to search for something beyond. According to the Anguttara Nikaya of the Sūtra Piṭaka of the Pāli Canon, the Buddha describes himself before enlightenment with the following:

¹⁴This article uses the translation by Maurice O'Connell Walshe; see Schumann (2004).

Bhikkhus [monks], before my enlightenment, while I was just a bodhisatta, not yet fully enlightened, it occurred to me: (1) ‘What is the gratification in the world? (2) What is the danger in it? (3) What is the escape from it?’

Then, bhikkhus, it occurred to me: ‘The pleasure and joy that arise in dependence on the world: this is the gratification in the world. That the world is impermanent, suffering, and subject to change: this is the danger in the world. The removal and abandonment of desire and lust for the world, this is the escape from the world.’
(Anguttara Nikaya 3.103)

This story in the Pāli Canon describes a person who was curious about finding some answers and who worked diligently to find them. However, the motivation behind this curiosity and diligence is suffering. This person feels that there is suffering in the world that one needs to overcome. As such, it is perhaps safe to suggest that prior to this person’s enlightenment, he had a depressed mood. This person was very sad knowing that everyone is suffering including himself.

According to legend, Siddhārtha saw other people’s suffering and, based on their suffering, was able to project himself into the future. This might imply that Siddhārtha had some sort of empathy towards other people’s suffering, which made him search for answers. Apparently, he was a very sensitive person. His empathy can be seen in various sutras and teachings, for example:

Worldlings subject to illness, old age, and death, are disgusted [by other people] who exist in accordance with their nature. If I were to become disgusted with beings who have such a nature that would not be proper for me since I too have the same nature. While I was dwelling thus, having known the state without acquisitions, I overcame all intoxications—intoxication with health, with youth, and with life—having seen

security in renunciation. Zeal [*ussāho*] then arose in me as I clearly saw nibbāna [nirvana]. Now I am incapable of indulging in sensual pleasures. Relying on the spiritual life, never will I turn back. (Anguttara Nikaya 3.39)

In the above sutra, Siddhārtha is portrayed as having strong empathy, in which he is able to reflect the suffering of others onto himself. This gives us a description of a person who is highly sensitive and who is suffering inside due to other people's suffering, and perhaps is also suffering due to nexting—he can see his future self within the context of suffering. Naturally, these empathic thoughts would make this person feel very depressed (O'Connor et al. 2007). Actually, this person repeats the following statements when describing the inevitability of old age, illness, and death: “When I reflected thus, my intoxication with youth was completely abandoned”; “When I reflected thus, my intoxication with health was completely abandoned”; and “When I reflected thus, my intoxication with life was completely abandoned” (Anguttara Nikaya 1.39). This person seems to have lost delight in his youth, health, and life, which provides evidence of a depressive mood.

Siddhārtha seemed to have a unique personality. According to the Big Five Traits of personality, Siddhārtha would be considered very high in openness to experience. This can be understood from his high curiosity and search for meaning and the truth. He was open to different teachings that might perhaps lead him to his goal. For example, he became a disciple of two teachers, Ālāra Kālāma and Uddaka Rāmaputta, who are introduced in Majjhima Nikāya 26. Siddhārtha was open to try their teachings to see if, in fact, he would reach his goal if he followed them. Siddhārtha, however, was dissatisfied by both teachings, even though he was able to master them and arrive at the sphere (realization level) that they described. Siddhārtha's goal was to solve the problem of suffering, and these teachings did not seem to satisfy him in reaching that goal.

Although Siddhārtha had the opportunity to be a peer in a school and then was offered to lead a school on his own, he was not satisfied, because that was not his goal. As such, he would be considered very high in conscientiousness, as he worked diligently to achieve his goal without swaying from his objectives. He left his family, his riches, and even the opportunity to lead a spiritual community (which he later ended up achieving anyway) for the sake of finding the truth. His goal was dependent on his high openness to experience, and his determination in achieving it was dependent on his high conscientiousness.

Before attaining enlightenment, while Siddhārtha was trying to achieve his goal, he was anxious and afraid while in isolated reclusion in the jungle, according to the Bhayabherava Sutra (Majjhima Nikāya 26). It reports that Siddhārtha was determined to subdue any fear, until it was in reality subdued. He attempted to suppress fear with mindful meditation (*dhyāna*).¹⁵ Although recent studies on mindful meditation are still physiologically inconclusive, there is growing evidence that it does cause some sort of neuroplastic changes in brain regions concerned with the regulation of attention, emotion, and self-awareness (Davidson and Lutz 2008; Vestergaard-Poulsen et al. 2009; Treadway and Lazar 2010; Tang et al. 2015). To this, we do not know if Siddhārtha meditated or not. However, if he did, according to the traditional account received, there is a high likelihood that his meditation caused changes to his brain's structure. However, there is no way of finding out for sure what those changes were or what, if any, impact they had on his behavior, cognition, and experience that lead him towards enlightenment. However, his determination and self-discipline suggests that his personality is, indeed, that of high conscientiousness.

¹⁵ Much scientific research has been done on the issue of stress reduction through mindful meditation, which makes this story (whether it was experienced by Siddhārtha himself or by the author of the sutra) plausible (Kabat-Zinn 1996; Marks and Dar 2000).

Siddhārtha's high conscientiousness is also attested in Mahāsīhanāda Sutra (Majjhima Nikāya 26), where he describes himself prior to enlightenment having tried several paths, including extreme asceticism, extreme coarseness, extreme scrupulousness, and extreme seclusion. He fasted from food and at times even ate his own excrement. However, his level of conscientiousness is best described by this stanza: "Chilled by night and scorched by day, alone in awe-inspiring groves, naked, no fire to sit beside, the sage yet pursues his quest" (Majjhima Nikāya 12.50). After all the austerities and hunger that caused him to have a weakened body, he still stated, according to the text, that he did not achieve any superhuman state (*uttari manussi dhammā*). This suggests that Siddhārtha expected some sort of superhuman state that would emancipate him from suffering. Perhaps Siddhārtha strongly assumed (presupposed) that he could achieve a superhuman state, and so this assumption informed his interpretation of his later experience.

The Mahāsaccaka Sutra (Majjhima Nikāya 36) emphasizes the development of the mind and not only the body. Here, it explains that Siddhārtha, prior to enlightenment, also tried breathless meditation and fasting from food, which he described as causing bodily pain. He also states that he did not achieve his goal through such austerities. He ends up breaking his fast by eating rice; by this action the five ascetics, who were with him, considered Siddhārtha to have left his quest. However, Siddhārtha rationally explains that he cannot achieve his quest with an emaciated body. As such, rather than being a sign of wavering conscientiousness, breaking his fast is a sign of strong conscientiousness. In addition to high openness to experience and high conscientiousness, Siddhārtha would be considered high in agreeableness, as he had very high empathy.

The fourfold absorption (*jhāna*), as described in the Mahāsaccaka Sutra (Majjhima Nikāya 36), was apparently the final step that Siddhārtha chose to pursue his enlightenment. At the moment of enlightenment, presumably his mind was able to recollect his past lives.

Whether his spiritual experience lead him to insight of actual past lives cannot be objectively determined. This experience could have been some sort of lucid dreaming, in which he was able to see himself in different settings. It might have been a state of mind that was induced through meditative processes. Whatever it was, it can be said that Siddhārtha interpreted his mind visualizations as a recollection of past lives. Rebirth is not something that Siddhārtha invented; such a teaching already existed in the society he lived in. As such, when he experienced what he called enlightenment, at that moment he could see himself in different settings (i.e. different times and places). Because he did not interpret what he saw as a dream, and because he saw things that were perhaps unfamiliar to him, and because his mind already had a presupposition of rebirth, he interpreted this experience as a vision of his past lives. This presupposition is evident in the sutra’s narration of his concentrated meditative mind: “I directed it [my mind] to knowledge of the recollection of past lives (*pubbenivāsānussati-ñāṇāya*)” (Majjhima Nikāya 36.38).

Please note that I am not at all trying to dismiss his vision. He probably did have a vision. However, whether that vision was actually of his past lives or whether his presuppositions make him interpret it that way is a different story. According to the Mahāsaccaka Sutra (Majjhima Nikāya 36), this was the first knowledge attained by Siddhārtha during the time he was resolute in meditation to gain enlightenment, and he might have been expecting some sort of superhuman experience, as discussed earlier. At that moment, Siddhārtha experienced what one may call an epiphany, or as the sutra narrates,

This was the first true knowledge attained by me in the first watch of the night.

Ignorance was banished and true knowledge arose, darkness was banished and light arose, as happens in one who abides diligent, ardent, and resolute. But such a pleasant feeling that arose in me did not invade my mind and remain. (Majjhima Nikāya 36.39)

After this, the sutra narrates,

I directed it [my mind] to knowledge of the passing away and reappearance of beings. Thus with the divine eye (*dibbena cakkhunā*), which is purified and surpasses the human (*atikkantamānusakena*), I saw beings passing away and reappearing, inferior and superior, fair and ugly, fortunate and unfortunate, and I understood how beings pass on according to their actions (*yathākammūpage*). (Majjhima Nikāya 36.40)

Here, it is evident that Siddhārtha had yet another presupposition, which is the law of karma that also was part of his sociocultural setting. This is clear when, according to the sutra, Siddhārtha states, “I directed it [my mind] to knowledge of ...” that these visions came to him consciously, as if it were perhaps a lucid dream. In other words, he was able to concentrate his mind on different objects willingly and perhaps manipulate his vision. This is important, because had he not already been exposed to the ideas of karmic law, rebirth, or the afterlife, his mind might not have thought about them and therefore, he may not have directed his knowledge towards them. In other words, what Siddhārtha experienced was not some sort of revelation of the unknown that occurred spontaneously, but an elucidation of his known presuppositions.

Also, as was shown, Siddhārtha, prior to his enlightenment, expected that he would not achieve his goal unless he was in some sort of a superhuman state. During his epiphany, the Pāli text reads, he experienced something that is “*atikkantamānusakena*,” which is beyond human. It describes this state as having “*dibbena cakkhunā*,” a divine eye. Since what he experienced is in line with his expectations, then he assumed that he had reached his goal. As such, he would not doubt that he experienced something unusual, something that could not be achieved through rigorous efforts of austerities or meditations, which he had tried before. It was something beyond what he had ever experienced. Perhaps, his mind reached a

state of intense alertness and awareness that his mind was able to see things that were earlier obscure to his conscious mind. This is the second knowledge he attained, and it was during the middle watch of the night.

Afterwards, the sutra narrates, Siddhārtha directed his mind to the knowledge of suffering, which was the original purpose behind his search for truth. During the last hour of the night, knowledge about suffering came to him: the origin of suffering, the cessation of suffering, and the way leading to the cessation of suffering. By gaining this insight, he immediately knew that his mind was now liberated, that birth had been destroyed, that holy life had been lived, and that he reached his ultimate goal; he would no longer reach another state of being (rebirth). This is the third knowledge he attained that night. Siddhārtha concentrated his mind based on a presupposition—the existence of a solution to suffering—a suffering he experienced.

Therefore, if we take the narrative in the Mahāsaccaka Sutra as a general account of what Siddhārtha experienced at the point of his enlightenment, we find that he consciously concentrated his mind on whatever presuppositions he already had. It is like when someone is in a lucid dream and consciously manipulates her dream, such as determinedly flying. The only reason she is flying is because she wanted to fly. Yet, in no way does this mean that the deliberate flying in her dream would ever achieve any sort of physical flight once she is outside her lucid dream.

The knowledge attained by Siddhārtha was divided into three different times of the night. This means that his epiphany did not come as a moment measured in a singularity, but was spread over time throughout the night. However, it is in my personal opinion, and in no way an assertion, that these three divisions of the night are metaphoric. If Siddhārtha was aware of the time of the night, then it should be assumed that he opened his physical eyes

after each knowledge had been attained. There is no way knowing for sure. However, tradition dates Siddhārtha's enlightenment to the first full moon of the month of Vesākha. Also, according to tradition, all major events of his life occurred during a full moon: his birth, his renunciation, his enlightenment, and his first sermon, as well as other events. Perhaps the full moon in Buddhism is symbolic to the metaphor used at the moment of his enlightenment, "darkness was banished and light arose." The full moon is the brightest object in the darkness of the night, at the time. As such, the radiance of the Buddha as a full moon lighting the darkness is a plausible metaphor. The three divisions of the night are perhaps metaphor of the darkness that is being lightened by the knowledge attained, as the full moon traverses the heavens. A true full moon rises as the sun sets, and sets as the sun rises. At the end of the third watch of the night, perhaps the full moon set when the sun rose. In other words, when Siddhārtha's mind was finally liberated, he was no longer the full moon in the darkness. There was no longer a full moon and there was no longer darkness.

In conclusion, it is highly likely that Siddhārtha of the sutras achieved some sort of a psychological state that was unique to the person experiencing it. His experience is not typical of a person who has psychosis for various reasons, such as the lack of hallucinations and the lack of delusions. If Siddhārtha hallucinated, he might have stated to his followers that he had heard a voice guiding him or telling him to do something. Although legend has it that he saw Māra's daughters trying to seduce him just before his enlightenment, this story seems to be metaphorical more than historical. Siddhārtha does not credit any voice or visualization for the knowledge he gained. Although the narration shows that he saw this knowledge through a divine eye, this does not necessarily mean he actually visually saw anything. It is highly likely that the words used are intended to be metaphorical. The lack of delusions may be attributed to Siddhārtha's personality being extremely high in the openness to experience spectrum. Siddhārtha seems to be open to different interpretations made by

people. As such, he was not delusional. Also, Siddhārtha seems to be very high in the agreeableness spectrum that he refused to suggest that he is superior to any other person. Unlike Muḥammad, he did not even have a grandiose conception that he had been specially chosen by God. Muḥammad had the presupposition that God can have prophets and speaks to people. Therefore, his enculturation of such a concept may have led him to have a healthy belief of what he is experiencing without necessarily being dysfunctional, and therefore, not necessarily delusional. The Qur'an often suggests that Muḥammad is only human like anyone else, but is inspired (e.g. Qur'an 18:110, 21:7–8, 41:6). As such, Muḥammad has high agreeableness, but Siddhārtha probably has even higher agreeableness, making him even more humble. He is not suggesting anything else to others except to attain what he has been able to attain.

5. Conclusion

In words of caution, psychobiography has limitations, and as such, the assessment made here is strictly based on the literature used to determine the symptoms experienced by Muḥammad and Siddhārtha. To repeat, I am in no way attempting to discredit the divine origin of Muḥammad's revelations or to demystify Siddhārtha's enlightenment. I am only attempting to put them in human terms. Due to the very subjective nature of altered states of consciousness, it is very difficult to fully grasp how similar or different these experiences are from one person to another. However, based on current neuropsychology, there seems little doubt that altered states of consciousness are physiologically mediated by the neurochemistry of the brain.

Muḥammad had a presupposition of the existence of some God. Pre-Islamic Arabia believed in gods, including the supreme Allah. As such, the notion of a God is not foreign to

Muhammad. His knowledge of Jews and Christians also makes the understanding of a single God something that he was able to mindfully perceive. Therefore, when Muhammad was in the cave experiencing an altered state of consciousness by meditating on who created this world, it was completely natural for him to interpret such an experience as a divine encounter, especially when such a notion was supported by individuals very close to him, his family and friends. This net of social support enhanced his high functionality and allowed him to manage his experiences.

Likewise, Siddhārtha had a presupposition of reincarnation, which caused him to search for a technique for liberation from this suffering. When his mind became completely submerged in this thought by meditating on it, he suddenly experienced an altered state of consciousness. Therefore, it was natural for him to think that this experience must be the method for liberation.

We cannot say with certainty that what was experienced by both Muhammad and Siddhārtha was the same. Narrating an experience is very subjective, and we cannot go to the past and perform brain imaging and blood and hormonal tests on both subjects. However, there is a very high likelihood that both subjects were highly influenced by their presuppositions and personalities in shaping their interpretation of what they experienced. Although we can assume, based on their pronounced search for truth and their rebelling against the status quo, that both Muhammad and Siddhārtha had high openness to experience and we can assume that both had high agreeableness due to their humility and being very amiable with others; Siddhārtha might have rated even higher than Muhammad in these two spectra. Scoring high in openness to experience result in better coping skills and protecting individuals from psychosis and delusions (Scholte-Stalenoef et al. 2016). Because of even higher openness to experience, Siddhārtha was apparently protected from delving into any delusion or dogma. He continued to have an open mind. This is not to suggest that

Muḥammad was delusional either, because the concept of a divine encounter was attested by family. If they gave him a different reason, Muḥammad might have not argued against it.

Apparently, however, Siddhārtha might have even scored higher in agreeableness, since he was protected from mania that he is some sort chosen. His message focuses on how others can become like him. Although the Qur'an states that Muḥammad is no different than any other human, it also states that he is divinely inspired. Muḥammad interprets his experience to have been coming from outside of his mind and being, while Siddhārtha interprets his experience as something coming from within his mind and being. Perhaps one of the reasons is that Siddhārtha did not have visual or auditory hallucinations. It is possible that his experience within the shizotypy spectrum is milder than that of Muḥammad.

Therefore, even though we cannot state with certainty that Muḥammad and Siddhārtha's mental experiences were the same, they also are not entirely different. Mystical experiences are very much neuropsychological states of mind. Presuppositions and personalities impact how these experiences are interpreted by the subject. Perhaps reaching enlightenment and attaining liberation is not only a mind or yogic exercise. A person may also need to have the right genetic predisposition to experience them. Some who may have the right genetic predisposition to attain psychosis, may not have high intelligence, and so they may become mentally ill. Others may not have the right personality and become delusional or manic. One may need to have the right combination to experience what someone with the same combination has experienced. However, what both Muḥammad and Siddhārtha also share is that they both are high in the conscientiousness spectrum: they both were very adamant to reach their goal and promulgate their message. This personality trait is usually negatively correlated in individuals with high openness. To have it high in individuals with high openness is not unheard of, but is extremely rare. Physiologically, there are perhaps more similarities than differences among mystical experiences, but presuppositions and

personalities (which may also partly have physiological elements) are what makes the interpretation of these experiences diverse.

The findings help us in two main ways: i) understanding how presuppositions and personalities shape the diverse interpretations of mystical experiences, and ii) it helps individuals, who do suffer from mental illness and revere the spiritual figures in question, and society to view their experience in a positive way to better cope with it. There is no such thing as mental illness or disorder, because there is no consensus on what is considered “*normal*.” It is an altered state of consciousness and the level of intelligence and personality is what mediates it. We must be thankful for such experiences, as they have produced powerful communities that acted as catalysts in the progress of humanity.

6. Limitations

This study has a major limitation that is brought by psychobiography on how accurate these biographies are truly portraying the subject matter. There is also no way to return back to the past and formally examine the two subjects in this study, during the time of their alleged mystical experiences. The limitations are not solely dependent on the historicity of the biographies used in this study, but also the limitations of neuropsychology itself. Neuropsychology is still an emerging field and there are more unknowns and uncertainties, as many symptoms might overlap with different disorders (if we can even call them disorders), but essentially dissimilar. For example, while a grandiose delusion might be a symptom for mania, but if one is enculturated to believe that some people may be able to hear the voice of God or see angels, then their minds might simply be making a logical inference of what it appears to perceive. Therefore, this study only provides a plausible hypothesis that remains inconclusive. However, it might help people who adhere to certain religious traditions to

better cope and appreciate people who might be suffering from altered states of consciousness knowing that their religious leaders might have had them. Also, it might help us understand comparative mysticism through various traditions and how the phenomenology may have a neuropsychological basis, though perhaps can be categorized in different types (for example, the mystical feeling of transcendence cannot necessarily be seen to be under the same category of hearing voices). Yet, it is the experiencer's presuppositions, expectations, and beliefs could shape the interpretation of such experiences, very much like those who could be psychotic may interpret their delusions or hallucinations, accordingly.

7. References

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