

NEUROTHEOLOGY OF ISLAM AND HIGHER CONSCIOUSNESS STATES

Nicola Luigi Bragazzi, Hicham Khabbache, Ignazio Vecchio, Mariano Martini,
Riccardo Zerbetto, Tania Simona Re

ABSTRACT: Generally speaking, human life is characterized by an array of experiences, which, both in health and disease, can have a spiritual/religious dimension. In the last decades, spirituality/religiosity has attracted a huge body of research and neurotheology or spiritual neuroscience is emerging as a modern multidisciplinary field aimed at understanding religious experiences and practices, as well its impact on well-being, with a focus on mental health, and its potential therapeutic implications in the treatment of neuropsychiatric disorders. For this purpose, neurotheology combines a variety of approaches and theoretical frameworks, deriving influences from theology, divinities and religious studies, philosophy, sociology, cognitive science, neuroscience, psychology, and anthropology. Available scientific evidences seem to suggest that Islam and Sufism (prayer and meditation) can contribute to the achievement of higher consciousness states.

KEYWORDS: Neurotheology; Consciousness states; Islam; Sufism

Generally speaking, human life is characterized by an array of experiences, which, both in health and disease, can have a spiritual/religious dimension. In the last decades, spirituality/religiosity has attracted a huge body of research and neurotheology or spiritual neuroscience is emerging as a modern multidisciplinary field aimed at understanding religious experiences and practices, as well its impact on well-being, with a focus on mental health, and its potential therapeutic implications in the treatment of neuropsychiatric disorders.

For this purpose, neurotheology combines a variety of approaches and theoretical frameworks, deriving influences from theology, divinities and religious studies,

philosophy, sociology, cognitive science, neuroscience, psychology, and anthropology (Sayadmansour, 2014; Stausberg, 2010).

Islam is a monotheistic, Abrahamic religion, whose principles and beliefs are articulated by a religious book, called *Qur'an*, and by the teachings and normative examples (called *sunnah*, and composed of accounts called *hadith*) of the prophet Muhammad (570–632, peace be upon him), considered the last prophet of God (in Arabic language, *Allah*).

All Muslim believers are committed to observe religious duties: namely, to pray five times a day (*as-salat*), to do the almsgiving (*az-zakat*), to fast during the Ramadan month (*as-sawm*) and to do the pilgrimage to Makkah at least once in life, if physically and economically able (*al-hajj*). The profession of Islamic creed (*ash-shahadah*) completes the five pillars of Islam (*arkan al-Islam*).

Within Islam, Sufism (from Arabic *suf*, literally “wool”), has been a prominent spiritual tradition in Islam combining influences from major world religions, such as Christianity and Hinduism and contributing substantially towards spiritual and psycho-physical well-being (Nizamic et al., 2013).

The Sufism aims at establishing a deep and profound communion with God through spiritual realization and fulfilment; soul being the agency of this communion, and tending towards God, which is the cause of all existence and the only real existence.

Sufism has elaborated a complex theory of consciousness states (Renard, 2015):

- *ihsan* (literally “beautiful action”), which represents the responsibility to obtain and achieve perfection/excellence in worship and religious duties,

- *lataif-e sitta* (in Persian/Urdu) or *al-latta 'if as-sitta* (in Arabic), the “six subtleties” or subtle centers, is the sensory/supersensory perception characterized by different levels:

- o *nafs*, the ego or the self, “the ego-self, natural self, carnal self” (Helminski, 2000), defined by the following appetitive qualities: pride (*takabbur*), greed (*hirs*), envy (*hasad*), lust (*shahwah*), backbiting (*gheebah*), stinginess (*bokhl*), and malice (*keena*). The process of self-transformation (*tazkiya-I-nafs*, or “purgation of the ego”, in Persian/Urdu) leads from *nafs-e ammara* (commanding ego or “compulsive ego”) to *nafs-e lawwama* (self-accusing ego) and, finally, to *nafs-e mutma'inna* (satisfied ego),

- o *qalb*, from an Arabic root meaning “to turn, rotate, fluctuate or vacillate”, the heart or the love, the organ of supra-rational enlightenment and intuition, conceived as an “isthmus” (*al-barzakh* in Arabic, *Alam-e-Araf* in Persian/Urdu) or a bridge between this world (*dunya*) and the next (*akhirah*), caught between the influence of the *nafs* and the *ruh*,

o *sirr*, the “innermost secret”, the “mystery” or the solar plexus, according to some scholars the conscience,

o *ruh*, the soul,

o *khafi*, the middle of forehead, and

o *akhfa/ikhfa*, the “most hidden” level, the soul’s origin and its perfection, the highest essence, leading to annihilation or *fanaʿ*),

• *noor*, which is the light and the knowledge,

• *maqamat*, which are the spiritual stations or developmental levels. According to the traditional Sufism, they are seven and represent the seven prophets of one's inner being, namely:

o the **repentance**, which can be considered as divided into three stages (*tawba* as the initial level of repentance, *inaba* as the sincere penitence, and *awba*, turning to God in contrition, the final and highest stage of repentance),

o the **abstention** or *waraʿ*, which literally means watchfulness and abstinence,

o the **ascetism** or *zuhd* (literally meaning the renunciation),

o the **poverty** or *faqr*,

o the **patience** or *sabr*,

o the **confidence** or *tawakkul* (literally meaning the trust), and

o the **contentment** or *ridaa* (literally meaning the acceptance).

According to other Sufi traditions and schools, the *maqamat* are forty or even one hundred (Nasr, 1991),

• *haal*, the spiritual state (plural *ahwaal*), which "denotes experiencing in one's inner world the "breaths" blowing from the realms beyond the world, and feeling the difference between the "night" and "day", as well as the "evening" and morning", that occur to the heart" (Fethullah Gülen, 2007). According to some Sufi scholars, they are ten, namely:

o *muraqaba*, literally “constant attention”, the meditation or self-supervision (during which the individual feels sensations like *taharruk* or vibration, movement or fluttering of the heart, *hararat* or warmth, *tadakkur* or achievement of the aim, *tabattul* or being lost in meditation),

o love or *mahabbah*,

o fear or reverence or *khawf*,

o spiritual yearning or *shawq*,

o proximity or *qurb*,

o hope or *rajaaʿ*,

o certainty or *yaqeen*,

o contemplation or *mushaahadah*,

o tranquility or *itmi'naan*, and

o familiarity or *uns*.

Ways of achieving higher consciousness states are:

- *dhikr*, the remembrance of God,
- *muhasaba*, self-criticism or self-interrogation,
- *samaa'*, the physically active meditation, which, according to some Sufi scholars, has different healing effects, such as restoring to consciousness fainted people, soothing crying infants, treating melancholia and some illnesses, giving joyful and pleasurable sensations (Avery, 2004),
 - *hadhra*, the dance associated with *dhikr*,
 - *taqwa*, from the Arabic root *wiqaya*, piety,
 - *khalwat*, literally meaning “privacy”; the spiritual seclusion or '*uzlat*, and
 - *qawwali*, the Sufi devotional music, which is quite widespread and popular in South Asia, in particular, in the Punjab and Sindh regions of Pakistan, in Hyderabad, Delhi and other parts of India, especially North India, in Dhaka, Chittagong and Sylhet divisions of Bangladesh.

We have attempted to briefly synthesize the complex Sufi doctrine. It should be emphasized that these growth and developmental stages are complex, sometimes overlapping and non-linear. Moreover, some concepts which are considered spiritual states by some scholars are considered spiritual stations by others, and *vice versa*.

Concerning the body of scientific evidences, Doufesh and coworkers (2014) have recruited a sample of thirty healthy Muslim men and have continuously recorded their electrocardiograms and electroencephalograms (EEGs) before, during, and after *salat* practice (the different steps of *salat* are pictorially shown in Figure 1).

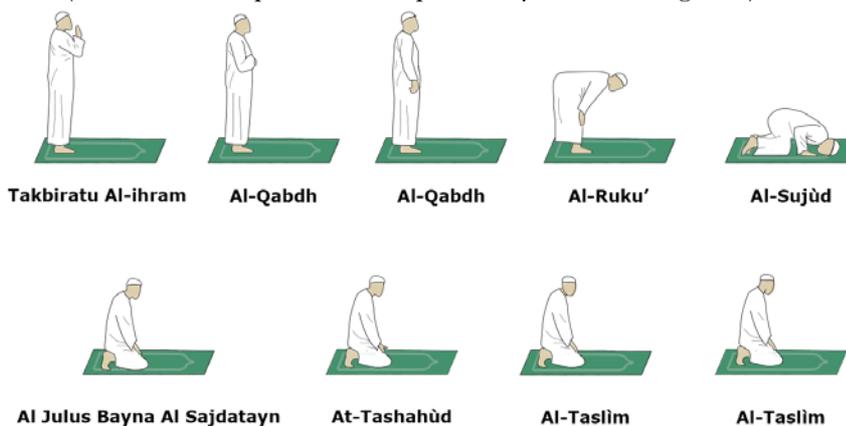


Figure 1. The different steps of the *salat* practice.

Power spectral analysis was conducted to extract the α relative power (RP α) and the heart rate variability (HRV) components. During *salat*, a significant increase was observed in the mean RP α in the occipital and parietal regions and in the normalized unit of high-frequency (nuHF) power of HRV. Meanwhile, the normalized unit of low-frequency (nuLF) power and LF/HF of HRV decreased according to HRV analyses. RP α showed a significant positive correlation in the occipital and parietal electrodes with nuHF and significant negative correlations with nuLF and LF/HF. Authors concluded that during *salat*, parasympathetic activity increased whilst sympathetic activity decreased, promoting relaxation, minimizing anxiety, and potentially reducing cardiovascular risk.

Austin (1999) investigated, among others, a subject who had engaged in Sufi meditation for eighteen years and experienced emotional arousal (free flow of tears during prayer practice and meditation), with an increase in the alpha frequency (from 11 to 12 cps).

Gutjahr and Mechleid have recorded EEG measurements which have corroborated from a scientific standpoint these traditions of at least a millennium (Guvenc, 2006; Mandel et al., 2005).

Bai and coworkers (2012) compared the cognitive functioning of Hui Muslims aged 60 and over who practiced *salat* prayer and/or did physical exercise with individuals in the same age group who did not engage in such practices (control group). Authors found that those in the group of participants who practiced SP or did PE demonstrated a similar level of cognitive functioning which was better than that of individuals who neither exercised nor prayed regularly.

Cakmak and colleagues (2017) investigated the structural cortical plasticity in 10 Sufi Whirling Dervishes (SWDs) versus 10 controls. Significantly thinner cortical areas for dervishes subjects were found compared with the control group in the hubs of the default mode network, as well as in the motion perception and discrimination areas including the right dorsolateral prefrontal cortex (DLPFC), the right lingual gyrus and the left visual area 5 (V5)/middle temporal (MT) and the left fusiform gyrus.

Taken together, meditation and prayer can contribute to the achievement of a higher spiritual and psycho-physical wellbeing. However further research in the field is urgently needed.

Nicola Luigi Bragazzi^{1,2,3,4,5}, Hicham Khabbache⁴, Ignazio Vecchio⁶, Mariano Martini^{2,3},
Riccardo Zerbetto⁵, Tania Simona Re^{3,5,8}

¹Postgraduate School of Public Health, Department of Health Sciences (DISSAL), University of

Genoa, Genoa, Italy

²Section of History of Medicine and Ethics, Department of Health Sciences (DISSAL),
University of Genoa, Genoa, Italy

³UNESCO Chair "Health Anthropology, Biosphere and Healing Systems", Genoa, Italy

⁴Faculty of Literature and Humanistic Studies, Sidi Mohamed Ben Abdellah University, Fez,
Morocco

⁵Gestalt Research Center - CSTG, Milan, Italy

⁶Department of Clinical and Experimental Medicine, University of Catania, Catania, Italy

Corresponding Author. Dr. Nicola Luigi Bragazzi
email: robertobragazzi@gmail.com

REFERENCES

- Austin, J. (1999). *Zen and the Brain: Toward an Understanding of Meditation and Consciousness*. MIT Press.
- Avery, K.S. (2004). *A Psychology of Early Sufi Samaa', Listening and Altered States*. London and New York. RoutledgeCurzon, Taylor & Francis Group.
- Bai, R., Ye, P., Zhu, C., Zhao, W., & Zhang, J. (2012). Effect of salat prayer and exercise on cognitive functioning of Hui Muslims aged sixty and over. *Social Behavior and Personality: An international journal*, 40, 1739-1748.
- Cakmak, Y. O., Ekinici, G., Heinecke, A., & Çavdar, S. (2017). A Possible Role of Prolonged Whirling Episodes on Structural Plasticity of the Cortical Networks and Altered Vertigo Perception: The Cortex of Sufi Whirling Dervishes. *Front Hum Neurosci*, 11, 3.
- Doufesh, H., Ibrahim, F., Ismail, N. A., & Wan Ahmad, W. A. (2014). Effect of Muslim prayer (Salat) on α electroencephalography and its relationship with autonomic nervous system activity. *J Altern Complement Med*, 20(7), 558-62.
- Fethullah Gülen, M. (2007). *Key Concepts In Practice Of Sufism, Volume 1*. Tughra Books.
- Guvenc, R.O. (2006). *Music Therapy in Turkey*. Voices Resources. Retrieved from http://testvoices.uib.no/community/?q=country/monthturkey_march2006.
- Helminski, K. (2000). *The Knowing Heart: A Sufi Path of Transformation*. Shambhala Publications.
- Mandel, G., Güvenç, O., & Vitali, R. (2005). *La musicoterapia dei Sufi*. Arcipelago Edizioni.
- Nasr, S.H. (1991). *Sufi Essays*. SUNY Press.
- Nizamie, S. H., Katshu, M. Z., & Uvais, N. A. (2013). Sufism and mental health. *Indian J Psychiatry*, 55(Suppl 2), S215-23.
- Renard, J. (2015). *Historical Dictionary of Sufism: Edition 2*. Rowman & Littlefield.

- Sayadmansour, A. (2014). Neurotheology: The relationship between brain and religion. *Iran J Neurol*, 13(1), 52-5.
- Stausberg, M. (2010). Prospects in Theories of Religion. *Method and Theory in the Study of Religion*, 22, 223-238.