FUNCTION OF THE NEUROSCIENCE ASPECT IN SURAH AL-INSYIRAH AND AL-ANKABUT IN INCREASING HAPPINESS AND ALLEVIATING STRESS DURING THE POST COVID-19 PANDEMIC ERA

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DOI: 10.47750/pnr.2022.13.S06.306

Abstract

This article aims to elaborate on the functionality of the neuroscience aspect found in Surah al Insyirah and Surah al Ankabut in efforts to increase happiness and reduce stress experienced during the post COVID-19 Pandemic era. Stress is the body's response to mental stress in human beings in the course of their daily life. This stress stimulus originates from both, outside and inside the human body and involves the limbic system, which is the centre for regulating adaptation in the human body. A growing body of research suggests that long term, stress-induced activation of the sympathetic nervous system (SNS) and the hypothalamic-pituitary-adrenal (HPA) axis may lead to increases in inflammation, which is known to play a key role in the pathophysiology of a variety of diseases. Furthermore, the burgeoning fields of social neuroscience and health neuroscience have begun to identify the neurocognitive mechanisms by which stress may lead to these physiological changes. Tadabur (deep reflection) on the meaning of Surah Al-Insyirah and Al-Maarij, which depict the problems faced by humans, can increase happiness and reduce the stress level in humans who are facing challenges brought about during the post COVID 19 pandemic era. Specifically, we summarize the results of neuroimaging studies that have examined the neural correlates of stress-related increases in SNS, HPA, and inflammatory activity. A set of neural systems involved in threat processing, safety processing, and social cognition are suggested as key contributors to stress-related changes in physiology.

Keywords: neuroscience, Surah al Insyirah, Surah al Ankabut, happiness, stress, post COVID 19-Pandemic.

INTRODUCTION

This article explains the functions of neuroscience found in Surah al Insyira and Al Ankabut that can help increase happiness and reduce stress experienced by individuals during the post COVID-19 Pandemic era. Based on a certain school of thought in cognitive science, positive psychological effects on religiosity improves the mood of cancer patients (Fering et al, 1997), which then increases their tendency to help others (Saroglou et al, 2005) and reduce anxiety (Kay et al. al., 2008; Park, 2005). Reduction in stress levels appears to be overwhelmingly apparent when religious individuals have a strong belief in their faith because it creates a more positive understanding of their environment (Pargament, 2002). The emergence of techniques in neuroscience has allowed neuroscientists to study how aspects of religiosity affect the human brain. The neuroscience aspect in the religious belief approach is a very new field, but there is considerable evidence that explains how religiosity reduces anxiety at the neural level in a person's brain. This study on neuroscience found that what we believe seems to have an effect on how our brain processes information. Previous psychological research has supported the role of religious beliefs in helping to reduce anxiety levels (Kay et al, 2008; Park, 2005) and now, this effect at the neural level is evident (Inzlicht, Tullet, & Good, 2011).

NEUROSCIENCE'S FUNCTION IN INCREASING HAPPINESS AND ALLEVIATING STRESS DURING THE POST COVID-19 PANDEMIC ERA

Stress is the body's response to an individual's mental stress experienced in daily life. This stress stimulus originates from both outside and inside the body and involves the limbic system, which comprises the thalamus, hypothalamus, amygdala,

hippocampus and septum, and functions as the centre for regulating adaptation in the human body. The hypothalamus plays a prominent role in almost the entire limbic system in the human body. When the hypothalamus is stimulated by psychological and emotional factors that cover four specific functions, namely the autonomic nervous system's activity that affects the anterior pituitary gland, which produces the adrenocorticotrophic hormone (ACTH) and the ADH hormone or vasopressin and stimulates the thyroid gland to produce the thyroxine hormone [Subramaniam, V., 2015]. Stress response in the body is instigated through several pathways involving the hypothalamus or also called the HPA (hypothalamus-pituitary-adrenal) pathway. The HPA pathway's activity through neurons in the para-vestibular nucleus in the hypothalamus produces the CRH (corticotropin-releasing hormone).

The CRH (corticotropin-releasing hormone) causes the anterior pituitary gland (the front of the pituitary gland) to release the adreno-corticotropin hormone (ACTH), which then stimulates the adrenal cortex gland to release glucocorticoid or cortisol [Wardhana, M., 2011]. Cortisol can also affect the balance of the Th1/Th2 cell ratio because there are glucocorticoid receptors on the surface of lymphocytes. The stimulus that will be processed by the cerebral cortex is moved to the hypothalamus through the limbic system by producing the CRH hormone, which acts on the anterior pituitary gland to release ACTH. ACTH is an adrenal cortex gland that produces various hormones. The adrenal cortex releases cortisol through ACTH, while the medulla of the adrenal gland releases catecholamines, namely epinephrine and norepinephrine hormones [Wardhana, M., 2011]. Other hormones released are the antidiuretic (ADH) hormone from the posterior pituitary and aldosterone from the adrenal cortex, which causes atrial and water retention [Smeltzer, S. C. (2001)].

Specifically, cognitive scientists are interested in measuring religiosity. Religiosity can be defined as the adherence to one's ideological position. High religiosity involves a rigid adherence to one's ideology. Importantly, religiosity doesn't have to pertain to religious beliefs as it can apply to any ideology. Cognitive scientists often use religious beliefs to study religiosity because they can provide meaning and a framework for understanding one's environment.

According to certain schools of thought within cognitive science, positive psychological effects of religiosity include lifting the mood of elderly cancer patients (Fering et al, 1997) increasing the propensity to help others (Saroglou et al, 2005), and reducing anxiety (Kay et al., 2008; Park, 2005). This reduction of anxiety seems particularly powerful when religious people have strong conviction in their beliefs as it creates a framework for understanding their environment (Pargament, 2002). The advent of neuroimaging techniques has allowed neuroscientists to study how religiosity impacts the brain as well. The neuroscience of religious belief is still a very new field, but there has already been substantial evidence in explaining how religiosity reduces anxiety on a neural level.

In addition to releasing the epinephrine and cortisol hormones, people who experience fear and stress also experience instability caused by the serotonin hormone produced by the dorsal raphe nucleus, norepinephrine hormone produced by the locus coeruleus and the dopamine hormone. These three types of hormones cause a lack of appetite, difficulty focusing, increased fear (anxiety) and mood disorders, such as being more irritable, in those affected. Then, stress occurs through the neural system involving the sympathetic nerves that cause the human body to become active and as an autonomous motor reaction that emerges from the central nervous system in the lumbar region (the narrowest part of the back of the body - the waist region) and the chest (thoracic region) in the backbone's marrow. Thus, if a person is in a state of stress, then the sympathetic nervous system will activate various parts of the body to respond, in the form of increased blood sugar, increased blood pressure, increased muscle activity and influence the body's metabolism [8].

Stress has also been reported to influence the activity of central dopaminergic and serotonergic neurons as well as create a relationship between serotonin and CRF in various parts of the brain. Previous studies have shown that a significant decrease in serotonin levels increases resistance to stress [13]; [21]; [22]. Conversely, excessive stress stimulates the adrenal and thyroid glands to produce increasing amounts of adrenaline, thyroxine and cortisol, which will then severely affect the body's homeostasis system [1]. Thus, if this situation is left unattended, stress can cause a variety of physical problems caused by reactions in the brain, nervous system and hormones, leading to hypertension and stroke.

The post Covid-19 pandemic era has created various negative consequences in our lives that has led to stress. Hence, it is suggested that the public should be always optimistic and think positively about living life in this post-pandemic era. Allah SWT exhorted in Surah Al-Insyrah verses 1 to 6 meaning, "with difficulties comes relief". In addition, having an optimistic and positive mind will certainly make it easier for humans to function effectively when making important decisions in critical moments. Hasan [9] stated that positive thinking can improve physical and psychological health, which provides a positive correlation between recovering from an illness and well-being. Positive thinking also increases the production of endorphins to relieve pain and create feelings of euphoria ("feel good") in order to balance adrenaline and cortisol hormones that will stabilize the heart rate, blood pressure, blood sugar as well as increase self-immunity.

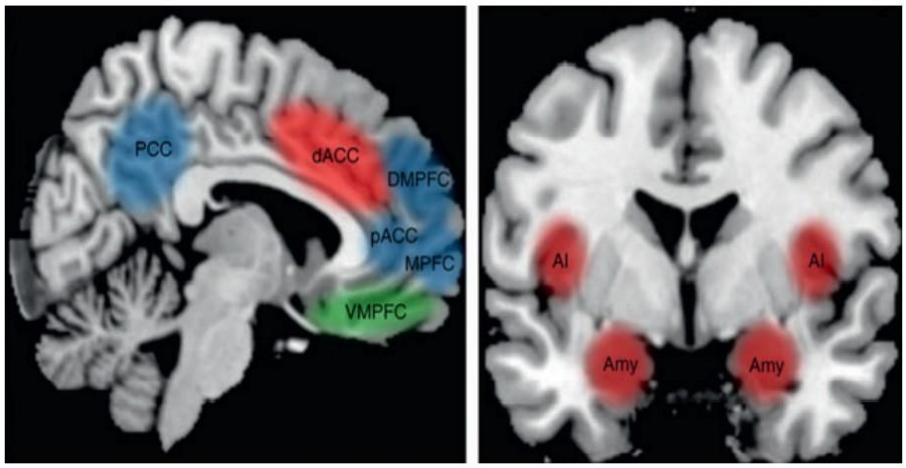

Figure 1 Schematic of neural regions that influence physiological responses to stress. Three primary neural systems have been shown to play a role in stressor-evoked physiological responses: a threat-related neural system, made up of the dorsal anterior cingulate cortex (dACC), anterior insula (AI), and amygdala (Amy; displayed in red), a safety-related neural system, made up of the ventromedial prefrontal cortex (VMPFC; displayed in green), and a self/social cognition-related neural system, made up of the medial prefrontal cortex (MPFC), perigenual anterior cingulate cortex (pACC), dorsomedial prefrontal cortex (DMPFC), and posterior cingulate cortex (PCC; displayed in blue).

THE ESSENCE OF SURAH AL-INSYIRAH AND AL-MAARIJ USED FOR INCREASING HAPPINESS AND ALLEVIATING STRESS DURING THE POST-COVID-19 PANDEMIC ERA

The Tadabur (deep reflection or a comprehensive and detailed observation of an expression or meaning) of Surah Al-Insyira and Al-Maarij helps to describe the problems faced by humans. Hasan, [9] explained that Surah Al-Insyirah was used to clearly describe stress by using the word “burden”.

"Have We not uplifted your heart (burden) for you ˹O Prophet˺, which weighed so heavily on your back, and elevated your renown for you? " (Q.S. Al-Inyirah: 1-3).

This verse uses the word “burden” and “back”, in which the latter refers to a part of the body that generates energy, while the former refers to stress [9].

In Surah Al-Maarij verses 19 to 35, Allah SWT exhorted that humans were originally created with the ability to sigh (complaint) and experience stress. Nevertheless, Allah SWT had asserted that there are eight qualities that must be possessed by humans in order to avoid the habit of sighing (complaining) and experiencing stress. Allah SWT exhorted in Suraj Al-Maarij, verses 19 to 35, meaning;

“Indeed, humankind was created impatient, distressed when touched with evil, and withholding when touched with good— except those who pray, consistently performing their prayers; and who give the rightful share of their wealth to the beggar and the poor; and who ˹firmly˺ believe in the Day of Judgment; and those who fear the punishment of their Lord— knowing that˺ none should feel secure from their Lord’s punishment— and those who guard their chastity except with their wives or those ˹bondwomen˺ in their possession, for then they are free from blame, but whoever seeks beyond that are the transgressors. ˹The faithful are˺ also those who are true to their trusts and covenants; and who are honest in their testimony; and who are ˹properly˺ observant of their prayers. These will be in Gardens, held in honour”. (Surah Al-Maarij, 70: 19-35)

Based on verse 19 in Surah Al-Maarij, Allah SWT uses the word "halu'a" to describe the situation where people are anxious or sighing (complaining). According to Ibn Manzur (1997) and Nasir (2018), the word halu'a refers to being restless or impetuous, i.e., lack of patience. Likewise, some interpreters argue that Allah SWT has created humans who are restless and miserly or stingy (Abdullah Basmeih, 2000 & Ibn Kathir, 2011).

DISCUSSIONS ON THE ROLE OF NEUROSCIENCE MENTIONED IN SURAH AL-INSYIRAH DAN AL-MAARIJ IN INCREASING HAPPINESS AND ALLEVIATING STRESS DURING POST COVID-19 PANDEMIC ERA

According to Al-Qurtubi (2009), al-halla' means extremely miserly (stingy) or of a despicable discomfiture. In addition, al-halla' also refers to those who are never satisfied or are ungrateful for something good that befalls them or are impatient when facing adversities. Allah SWT further elaborated in verses 20 and 21 on the nature of those who complain. According to Ibn Kathir (2011), Allah SWT has created humans who are naturally anxious and stressful. Humans tend to become agitated and sigh (complain) especially if they are afflicted by an adverse situation, such as poverty, lack of wealth, loss of possession, death or illness. They are heart-broken, afraid and feel hopeless when deprived of goodwill. However, when humans receive the blessings of Allah SWT, they become miserly and self-centred, while refusing to recognise their rightful obligations accruing to Allah SWT that they owe due to the blessings received. Humans will complain when their wealth shrinks or when they become destitute. Besides sighing (complaining), most humans are impatient when they lack wealth or are in a state of poverty. Conversely, people become miserly when they are wealthy and refuse to be kind and benevolent by spending some of their wealth in the name of Allah SWT (At-Thobari, 2009).

Therefore, the characteristics of individuals mentioned in Surah Al-Maarij verses 9 to 11 describe them as those who complain, agitated, lack patience, miserly, in despair and do not fulfil their obligations to Allah SWT. From a modern psychological perspective, the characteristics and signs inherent in individuals suffering from mental disorders are excessive sadness, restlessness, anxiety, insomnia, lack of appetite, lack of activity and despair. In general, these two perspectives share some very similar signs and characteristics. Hence, it is not an exaggeration to say that halu'a is one form of a psychiatric disorder. When they are afflicted with adversities, poverty, pain or disaster they become sad and disturbed. Whereas, when they receive some form of gratification, pleasure, good health or goodwill, they not only become ungrateful and unappreciative but also greedy and refuse to fulfil their obligations to Allah SWT. This is also mentioned in Surah Al-Zumar (39: 8) and Surah Yunus (10: 12), where Allah SWT exhorted, meaning;

“Whenever someone is touched by hardship, they cry out to US, whether lying on their side, sitting, or standing. But when We relieve their hardship, they return to their old ways as if they had never cried to US to remove any hardship! This is how the misdeeds of the transgressors have been made appealing to them”. (Q.S. Yunus, 10: 12).

In addition to the explanation about stress, this surah also explains in detail the solution for overcoming stress, which is to embrace the psychological aspects contained in it, including patience, optimism, calmness, effort, and reliance [3]. The empirical reflection (tadabbur) on Surah Al-Insyira has been known to effectively reduce stress [3]. This deep reflection (tadabbur) is intended to manipulate the cognitive aspect to make oneself more positive and optimistic for the sake of survival when facing the post-Covid-19 pandemic. Confidence in Allah SWT’s promise, as mentioned in Surah Al-Insyira, can be increased by understanding, interpreting, appreciating and learning the lessons mentioned in it so that negativity (thoughts etc.) caused by the pandemic can be replaced with positivity through a deep appreciation for the psychological aspects mentioned in surah Al-Insyira [3];[9] (Ansyah et al., 2019; Hasan, 2008). Efforts to reduce the level of stress is divided into three levels. Verses 1 to 6 are consistent with the recommendation to always be optimistic and think positively [4]; [9] (Benedictus, 2018; Hasan, 2008).

"Have We not uplifted your heart for you ˹O Prophet˺, relieved you of the burden which weighed so heavily on your back and elevated your renown for you? So, surely with hardship comes ease. Surely with ˹that˺ hardship comes ˹more˺ ease.” (Q.S. Al-Insyrah: 1-6).

Ibnu Katsir [4]; [11] interpreted the verses above as Allah SWT’s promise that every human adversity will have a solution. Hence, humans do not have to worry about facing adversities, but instead, they should be always patient in such circumstances. Conversely, from neuroscience’s perspective about optimism consistent with the meaning of verses 1 to 6 in surah Al-Insyira, when an individual imagines a positive future event the rostral anterior cingulated cortex (RACC) and the right amygdala will become increasingly active compared to a pessimistic individual. The more active the RACC becomes, the higher a person's level of optimism. The amygdala itself is the link between emotions and higher-order brain functions, such as an executive’s functions that require memory and an individual’s decision-making method. The amygdala’s contribution is moderated by the RACC, a part previously associated with self-reflective actions and hope. The RACC helps humans to imagine future events by evaluating and embodying past emotions and experiences. However, it provides positivity in various situations and lowers the negative emotional response from the amygdala. The RACC helps to re-write our past, but our future is a blank page where we strive to empty ourselves of negative experiences and get motivated towards positive experiences [18]

Positive thinking and the desire for happiness also encourages healthy brain growth, as well as the formation and strengthening of new synapses, especially in the prefrontal cortex (PFC), which serves as the integration centre for all brain-mind functions. In fact, the PFC not only organizes the signals sent by neurons to other parts of the brain and body but also makes it possible to think and reflect on what humans do physically. Specifically, the PFC controls emotional responses through connections to the brain's limbic system. People who have a cheerful and optimistic personality usually have higher levels of activity in the left PFC. The PFC is the only part of the brain that can control emotions and behaviour as well as help to focus on the type of life goals that one desires. This will help individuals to live as positively motivated human beings, able to change their life choices and live a daily life according to their life goals [17]. The frontal cortex also helps individuals to identify what they see in a correct framework structure and actualise it in real life [2]. Verses 19 to 35 of Surah Al-Ma'arij contain instructions on how to avoid hallu'a or complaints that plague an individual's mind. This is because Allah SWT has mentioned in these verses that there are eight human qualities that will prevent them from cultivating the habit of sighing (complaining). One point of view posits that these eight properties can also be the basis for the treatment of anxiety attacks. Counsellors can discuss these eight qualities with patients in an effort to guide them to become responsible and true believers.

CONCLUSION

These neuroscience studies suggest that what we believe does appear to have a top-down effect on how our brain processes information. Scholarship in religious studies and related fields can help parse apart these beliefs and neuroscience allows us to study their effects on the brain. It’s important to operationalize belief as best we can before conducting behavioral research on religiosity. Psychological research has previously supported the role that religious belief can play in helping to reduce anxiety (Kay et al, 2008; Park, 2005) and now we can observe this effect on a neural level (Inzlicht, Tullet, & Good 2011). High religiosity seems to provide a strong anxiety of uncertainty buffer by providing a framework for understanding one’s

environment. Parsing apart the specific components of religiosity which create this uncertainty buffer can be addressed with future research.

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