

Analysis of the Conceptual Map of Consciousness as a Cognitive Function in the Qur'an

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ABSTRACT:

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This study delves into the concept of consciousness in the Qur'an, comparing it with cognitive science. While cognitive science views consciousness as a function of the brain, the Qur'an employs various terms such as soul (*al-nafs*), heart (*al-qalb*, *al-sadr* and *al-af'idah*), hearing (*al-sam*), sight (*al-baṣar*), etc. to describe tools of consciousness. In order to explore the Qur'anic perspective on consciousness and its compatibility with cognitive science, an in-depth analysis of relevant areas pertaining to human consciousness, as well as the capacities of the heart and brain, is essential. Employing an analytical-comparative method with an extra-religious perspective, we extract cognitive terminology associated with consciousness from the Qur'an. By employing graph-based tools to create and analyze a conceptual map of these terms, we find that soul, heart, hearing, and sight emerge as crucial tools for generating consciousness. Of these, the Qur'an highlights the human soul as the primary tool for acquiring and processing consciousness, distinct from the spirit (*al-rūḥ*). This soul is balanced in such a way that it can collaborate with the body and brain of the human to achieve consciousness.

KEYWORDS: Consciousness, Cognitive Science, Conceptual Graph, Qur'an and Science.

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1. Introduction

Cognitive science, as one of the modern human sciences, has achieved a unique position among disciplines related to humans. This interdisciplinary field focuses on the study of the brain and human cognitive functions. One of the most important and challenging topics in cognitive science is the concept of human consciousness, which has posed challenges for scientists to justify their theories by relying solely on the physical and material aspects of humans and their minds.

In order to examine the concept of human consciousness from the Qur'anic perspective and compare it with some of the findings of cognitive science, we must consider the divine book as a coherent whole in which all its verses are intricately connected within a unified system. Tabataba'i, in interpreting the verse (Q. 4:82): "Do they not reflect on the Qur'an? Had it been from other than Allah, they would certainly have found so many contradictions in it," states that reflection (*tadabbur*) has two meanings. The first is to follow one thing after another, and the second is to reflect on one verse after another, or to be more careful and precise after an initial reflection. However, since the purpose of the verse is to emphasise that there is no discrepancy in the Qur'an, and since discrepancies arise when more than one verse is considered, the second meaning is more appropriate. This indicates that in order to interpret and understand the meaning of a verse, it is necessary to examine the related verses alongside it (Tabataba'i 1996, 5:26). Words may have a specific meaning in a particular context, but their meaning may shift once they enter another context (Sadeghi 2016, 11). It seems that exploring the concept of human consciousness through the context of the Qur'an, its perspectives, and the use of vocabulary in this book can provide valuable assistance in finding an answer to the question of where is the place of consciousness in human beings according to the Qur'an.

To investigate in-depth the domains related to human consciousness and examine the position of consciousness in humans from the perspective of the Qur'an, and compare it with some cognitive science findings, it is essential to answer the following question. What is the conceptual map related to human consciousness in the Qur'an? By answering this question, it is possible to examine the Qur'an as a coherent context in order to bring the literature of the Qur'an and cognitive science closer together and to answer the question that according to this conceptual network, which is the most important tool of human consciousness.

1.1. Research Methodology

Two approaches were used to find the vocabulary related to consciousness in the Qur'an and to create a conceptual map of consciousness through these terms; from the Qur'an to cognitive science, and from cognitive science to the Qur'an. The initial approach involved examining the verses of the Qur'an, from the beginning to the end, to identify cognitive terms associated with human consciousness, such as words that describe how individuals perceive themselves and their surroundings. This process generated a list of these specific lexicons. In the second approach, a list of cognitive functions related to consciousness was obtained from cognitive science resources, the most important of which include perceptual functions, attention functions, executive functions, social cognitive functions, and memory functions, all of which have sub-functions. After examining the cognitive functions, those with behavioral states were set aside. Then the remaining mental functions were investigated, and those related to the issue of consciousness were separated. Subsequently, the presence of these cognitive functions in each verse was examined.

In order to select cognitive lexicons, in addition to examining the text of the verses, attention was paid to the translation, literal meaning and interpretations of each term. Finally, using both approaches, we found 288 cognitive lexicons related to consciousness in the Qur'an and categorized them. The cognitive functions related to consciousness were classified into five categories based on the conceptual connection of the lexicons with consciousness and according to the existing categories in cognitive science regarding consciousness, including presence and absence of consciousness, agent of consciousness, emotions resulting from consciousness, tools of consciousness, and consequences of consciousness.

The next step was to draw the conceptual map and ontology graph for these concepts. For this purpose, the most frequently occurring concepts were extracted (Figure 9) and the adjacency matrix of concepts was obtained. This matrix showed that each concept was co-occurred with what concepts in the verses and with what frequency.

As the number of concepts related to consciousness was much larger than what could be represented in a general graph, it was decided to draw graphs of concepts related to consciousness in a step-by-step manner using adjacency matrix and specialized graph visualization online tools. Initially, graphs were drawn for concepts that had more than twenty co-occurrences (Figure 12), then for more than seventeen co-occurrences (Figure 13), and for more than ten co-occurrences (Figure 14). The central core of the graph

was also drawn by pruning the vertices with a degree less than fifty (considering two co-occurrences for each vertex) (Figure 11). The degree of a vertex refers to the number of vertices connected to it. In the central core of the graph, vertices that had more than fifty connections with other vertices were included. Finally, by examining the Heart and Soul graphs as the most used tools of consciousness in the Qur'an and studying their connections with cognitive concepts related to consciousness, the focus was on solving the issue as to which of these two is the most important tool of human consciousness in the context of the Qur'an.

1.2. Literature Review

Numerous books and articles have been written on cognitive science and cognitive abilities related to human consciousness. However, only a limited number of these writings have examined the connection between cognitive abilities and religion. Among them, only a few articles have been able to establish a relationship between cognitive science and abilities, and the Qur'an. These connections have generally been discussed in a broad sense, but no research has been found on consciousness in the Qur'an and the associated conceptual map in our searches.

Kharrazi (2017) provided meanings and Persian equivalents for cognitive concepts in his book. Ghyasvand (2011) classified human consciousness and presented theories and classifications proposed by scholars in this field. In the book "Human Agency: A Religious-Philosophical Approach", Bagheri (2020) explored human Soul in the Qur'an and philosophy and explained various perspectives in this regard. He also discussed the definition of cognition and its categories and presented his own view on each of these topics.

In addition, the book "The Mystery of Consciousness" written by John Searle (2015) is an important book in the field of consciousness discourse that presented a theory on the dual aspect of consciousness. Chalmers (2010) presented arguments for the fundamental nature of consciousness and its universality in the world. These research works have been used as sources in this article, although the objective, methodology, and results of the current research are completely distinct from the aforementioned studies.

2. Lexical Review

2.1. Consciousness

Cognitive science utilize tools from psychology, computer science,

linguistics, anthropology, philosophy, and neuroscience to investigate human intelligence. In cognitive science, the mind refers to the collection of intelligent and conscious phenomena, such as thinking, perception, memory, reasoning, and so forth (Shariati 2016, 45). In essence, cognitive science attribute all cognitive abilities of humans and their consciousness to the brain and the associated neural system. However, there are differing opinions among cognitive science experts regarding the concept of the mind. The term "consciousness" has become the basis for various discussions, ranging from denying its existence and considering it as an illusion to attributing consciousness as a non-material, independent, and irreducible criterion.

Consciousness is derived from the Latin word *conscientia*. Ferdinberg (2020, 565) writes in his definition of consciousness that it is the quality of mental experience. John Searle, as one of the physicalists seeking the origin of consciousness and exploring the mind-body relationship, discusses the definition of consciousness. He says, like many terms, consciousness does not have a specific definition that is based on its nature, characteristics, or necessary and sufficient conditions. However, it is very important to be precise about what we are talking. Because the phenomenon of consciousness needs to be distinguished from other phenomena such as attention, knowledge, and self-consciousness (Searle 2019, 16). However, if we make a distinction between analytical definitions, which aim to analyze the underlying nature of the phenomenon, and definitions based on commonsense, which only clarify what we are talking about, presenting a definition based on commonsense is by no means difficult. In my opinion, Consciousness is an internal, first-person and qualitative phenomenon (Searle 2015, 15).

Chalmers (1997, 11) describes consciousness as a mental state that is conscious if there is something it is like to be in that state, I call this the quality of experience or phenomenal consciousness. Additionally, he (1995, 53) divides the problem of consciousness into the "easy" and "hard" parts, considering experience or phenomenal consciousness as the hard part.

Due to the existence of different definitions of consciousness, researchers have expressed their own understanding of consciousness based on its definition or its types and categories in various studies. In this research, we will focus on examining two types of consciousness that are more frequently used in the Qur'an: phenomenal consciousness and representational consciousness. Perhaps the simplest definition for a better understanding of phenomenal consciousness is that when observing a disease in someone else, our information is formed through observation or the patient's statements (functional consciousness). However, if we

ourselves become the patient, the information stored in our mind will be first-hand information (phenomenal consciousness).

Therefore, Consciousness (phenomenal) is equal to storing information in the mind and perceiving it (Hamidizadeh 2017, 1). To define representational consciousness, we first need to define representation. Mental representations are providers and reflectors of an object's or a real situation's characteristics (Friedenberg and Silverman 2020, 4-5). Therefore, when we become aware of the existence of something, such as a disease, and think about its characteristics, we have representational consciousness.

2.2. Graph

A graph is a collection of vertices (also known as nodes) connected together by a set of edges (also known as arcs). The edges can be either undirected or directed, with each type serving various purposes. The main application of graphs is in modeling various phenomena and conducting analysis on them. With graphs, one can easily store a large map or an extensive network within a matrix called an Incidence matrix of the graph, or apply suitable algorithms to it (Cormen et al. 2001, 529). One type of graph employed in this research is an ontological graph, which is used to represent the network of concepts found in the text. As it visually represents logical relationships, it helps prevent cognitive errors in inference and reasoning. Ontology encompasses two main elements, concepts (and concept instances) and relationships (between concepts) (Sanatjoo 2012, 220).

3. *The Conceptual Map of Consciousness in the Qur'an*

To extract cognitive functions related to consciousness from the Qur'an, two methods were employed. First, after studying cognitive books related to consciousness, verses of the Qur'an were examined in order, taking into account the vocabulary indicating human perception of oneself and the surrounding environment, leading to consciousness. Then, we referred to cognitive books to extract fine cognitive functions from them. The most important cognitive functions in cognitive science include perceptual functions, attentional functions, executive functions, social cognitive functions, and memory function, each of which has its own sub-functions mentioned below. However, behavioral functions and functions unrelated to consciousness have been removed from this list. Then, we proceeded to match the obtained list with the Qur'an.

3.1. Categorization of Concepts Related to Consciousness

After extracting the words related to consciousness from the Qur'an and homogenizing the words that convey a unified meaning despite their different appearances, 288 terms were obtained. These terms were divided into five general categories based on their relationship with the concept of consciousness (figure1). These five categories include presence and absence of consciousness, the agent of consciousness, emotions resulting from consciousness, tools of consciousness, and consequences of consciousness.

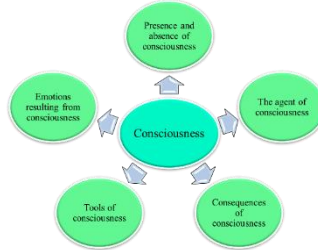


Figure 1. Five general categories of consciousness in the Qur'an

3.1.1. Presence and Absence of Consciousness

This category includes 59 cognitive functions that consists of words directly related to presence and absence of consciousness, such as notice, information and ignorance. The list of these lexicons is shown in figure 2.

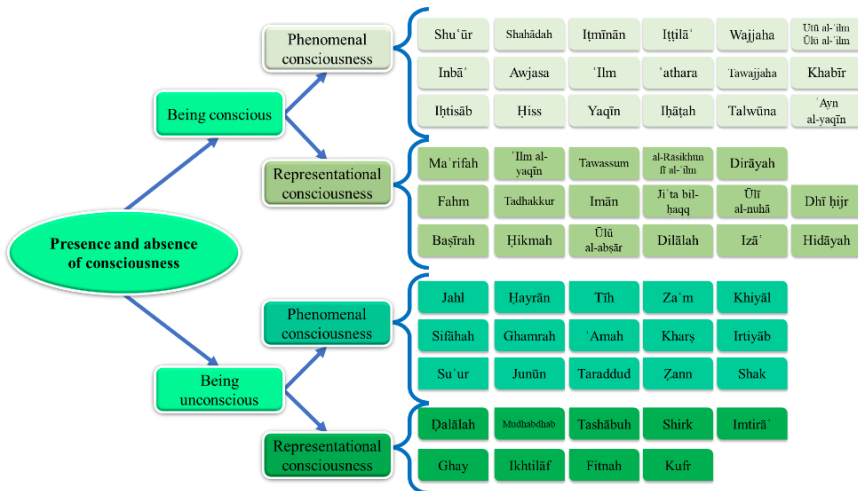


Figure 2. Classification of the terms associated with presence and absence of consciousness in the Qur'an

3.1.2. Agents of Consciousness

This category encompasses processes that contribute to creating or preventing consciousness in humans, serving as facilitators or inhibitors in attaining consciousness. These processes can be further divided into internal and external categories. External processes involve an external agent, such as inspiration or temptation, being the cause of creating or inhibiting consciousness.

On the other hand, internal processes involve an internal agent, such as thinking or neglect, being the cause of creating or inhibiting consciousness in an individual. The internal category consists of two types of processes: sensory-phenomenal (creating consciousness through the five senses) and non-sensory-phenomenal (creating consciousness through internal perceptions), each of which involves internal causes and obstacles to consciousness. The external category also includes external causes and obstacles to consciousness. We identified 44 words in this category, which can be seen in figure 3.

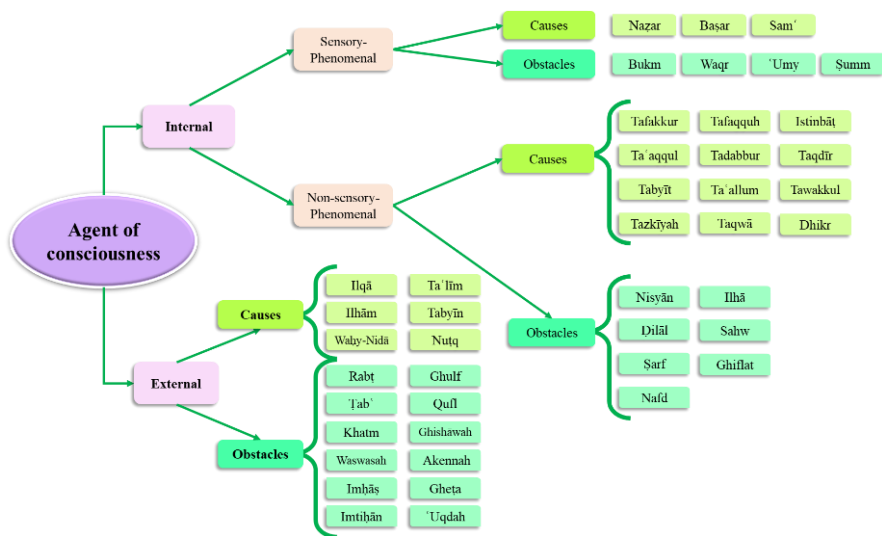


Figure 3. Classification of the terms associated with agents of consciousness in the Qur'an

3.1.3. Emotions Caused by Consciousness

This category includes 131 cognitive functions related to consciousness. It encompasses emotions and feelings that are generated by being or becoming conscious of something. For example, becoming conscious of a certain issue can lead to discomfort or anger in an individual.

To classify these emotions and feelings, it is necessary to examine their well-known classifications in cognitive science, enabling easy categorization of emotions in the Qur'an as well. The Emotion Wheel is one of the most renowned classifications of emotions in cognitive science (Figure 4).

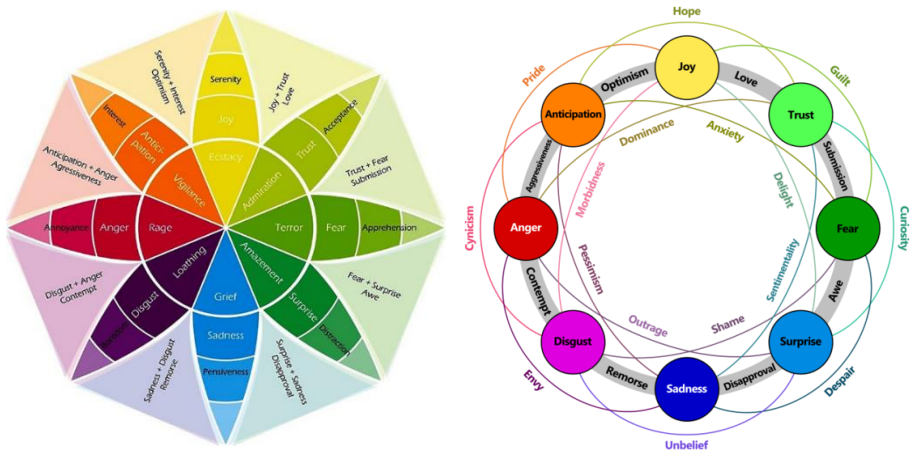


Figure 4. a) Emotion Wheel (Plutchik 2000) b) Graph displaying the primary, secondary, and tertiary dyads on the Plutchik wheel of emotions (ChaoticBrain 2019).

Based on Plutchik classification, the categorization of emotions stemming from consciousness in the Qur'an was addressed (Figure 5).



Figure 5. The terms associated with emotions caused by consciousness in the Qur'an based on the classification of Emotion Wheel

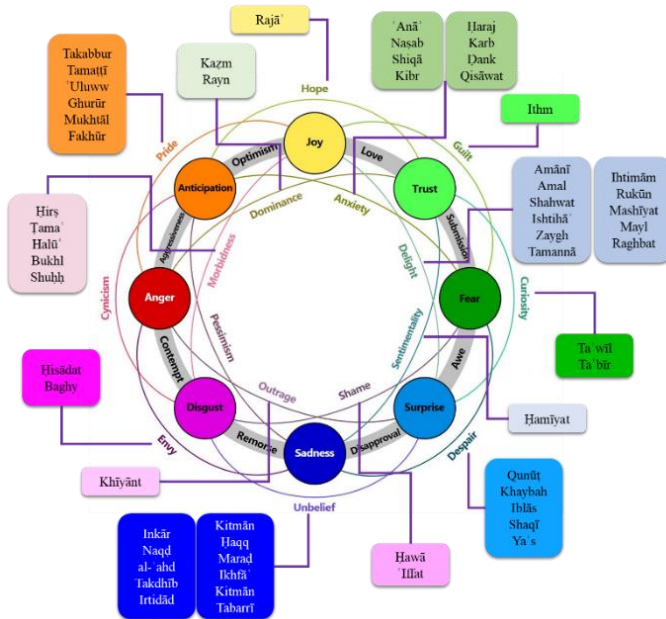


Figure 6. The terms associated with emotions caused by consciousness in the Qur'an based on the Plutchik emotion wheel redesigned by ChaoticBrain (2019)

3.1.4. Tools of Consciousness

This category includes 24 terms divided into two classes, sensory and mental. The sensory tools include the tools of five senses, four of which are mentioned in the Qur'an, eye (*'ayn*), ear (*udhun*), tongue (*lisān, afwāh*), and touch (*aṣābi'*). The mental terms consist of non-sensory tools mentioned in the Qur'an that are attributed with various cognitive functions, which will be discussed in subsequent sections. Figure 7 illustrates these tools and their categorization.

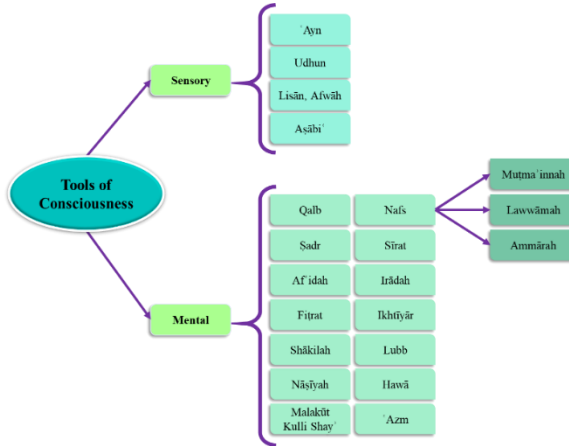


Figure 7. Classification of the terms associated with the tools of consciousness in the Qur'an

3.1.5. Consequences of Consciousness

The terms in this category consist of words that are the results of being aware or unaware. For example, a conscious human recognizes their duty to obey God and His righteous servants, while an unconscious individual tends to engage in disobedience. The words present in this category are 30 in total, and their list is provided in figure 8.

Consequences of Consciousness				
'Inād	Isti'ānah	Hilah	Riyā	Tayyib
Ibtāl	Mawaddah	Makr	Shattā	Tabra'ah
Idh'ān	Thubāt	Khud'ah	Furqān	Rusbd
Niḥāq	'Izzat	Kayd	Ibā'	Ri'āyah
Taqallub	Sharḥ Sadr	Taswīl	Istinkāf	Inābah
Talbis	Ihrād	Dayq	Khabith	

Figure 8. The terms associated with consequences of consciousness in the Qur'an

3.2. Constructing the conceptual map of consciousness-related terms

After extracting the terms related to consciousness using the two mentioned approaches, the most frequent concepts were identified to create a conceptual map of consciousness-related terms (Figure 9). Then, the concept adjacency matrix was obtained. This matrix revealed which concepts co-occurred with each other in the verses and the frequency of these co-occurrences. Since the number of concepts related to consciousness was much larger than what could be graphed in its entirety, it was decided to gradually draw the concept co-occurrence graph of consciousness-related terms using the co-occurrence matrix and online graph visualization tools. For this purpose, a graph was initially drawn for the concepts that had co-occurrence more than twenty times (Figure 12), followed by graphs for co-occurrence more than seventeen times (Figure 13), and more than ten times (Figure 14). The central core of the graph was also drawn by pruning the nodes with a degree of less than fifty (considering two co-occurrences as the threshold for considering an edge) (Figure 11). The degree of a node refers to the number of connections attached to that node, and in the central core graph, nodes with more than fifty connections to other nodes were represented.

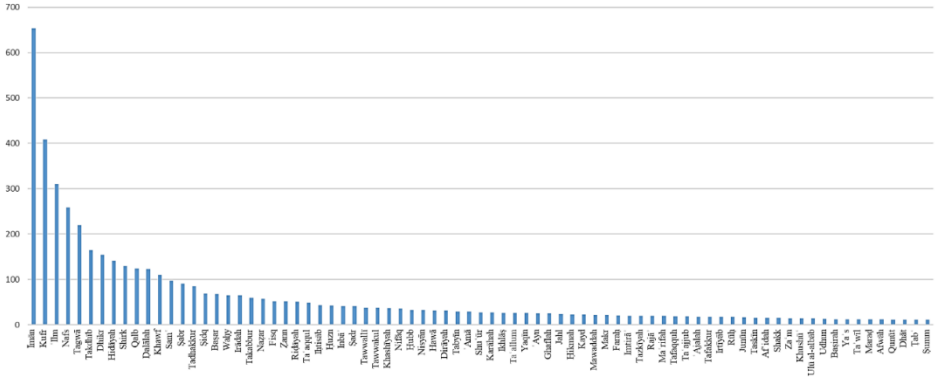


Figure 9. The most frequent concepts related to consciousness in the Qur'an

After examining all the verses of the Qur'an and extracting cognitive functions, a total of 3268 verses, which is more than half of the Qur'an verses, were selected as having one or more cognitive functions. The distribution chart of these terms is as follows (Figure 10).

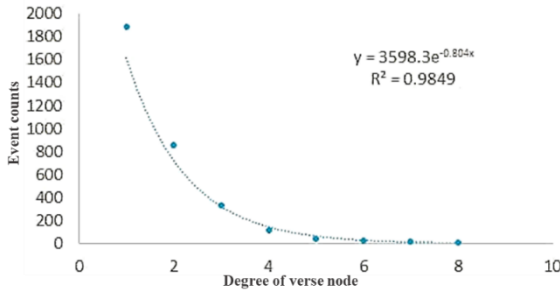


Figure 10. Distribution of event counts for verse node degree

After categorizing the terms, a conceptual map of them was drawn to facilitate analysis and graphing. Initially, the core of the concept graph related to consciousness in the Qur'an was drawn. To draw the core graph, nodes with a degree of less than fifty (considering the co-occurrence threshold for edge inclusion) were pruned. In other words, among all the extracted concepts from the verses, only the concepts that had a co-occurrence relationship (more than two times) with more than fifty other concepts were considered (Figure 11).

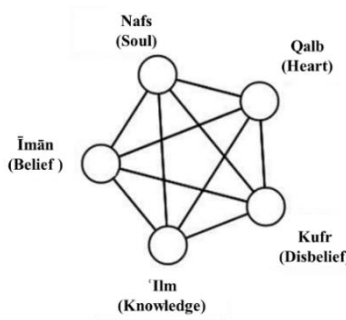


Figure 11. The core of the graph of the consciousness-related concepts in the Qur'an

This graph demonstrates that every individual, according to Qur'anic strategies, should consider other cognitive pillars to enhance their faith. That is, refining the soul (*nafs*), purifying the heart (*qalb*), seeking knowledge (*'ilm*), and staying away from disbelief (*kufr*) are necessary for the elevation of faith (*'imān*). After drawing the core of the graph, edges were drawn for concepts that had co-occurrences more than twenty times, meaning edges with weights less than twenty were pruned in the graph (Figure 12).

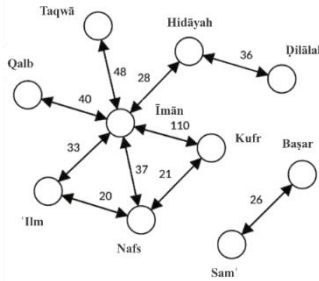


Figure 12. The concepts related to consciousness with co-occurrences more than twenty times in the Qur'an

An interesting point in this graph is that the verse Q. 2:130, "And who turns away from the religion of Abraham but such as debase their souls with folly,"¹ is clearly evident in this graph. On one side, the soul is connected with a weight of about twenty to disbelief, and on the other side, it is connected with a weight of twenty to knowledge, and knowledge is connected to faith. Therefore, it can be concluded that increasing knowledge can bring the soul closer to faith. Then, a graph was drawn for co-occurrences more than seventeen times, meaning edges with weights less than seventeen were pruned in this graph (Figure 13).

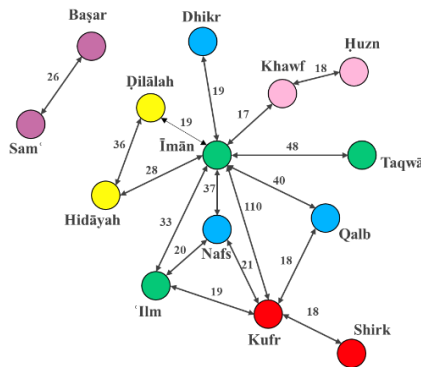


Figure 13. The concepts related to consciousness with co-occurrences more than seventeen times

After that, to facilitate the analysis and examination, the graph was drawn for co-occurrences more than ten times, which summarizes all the relevant concepts related to consciousness. It represents the conceptual map and terms related to human consciousness in the Qur'an (Figure 14).

1. «وَمَنْ يَرْغَبْ عَنْ مِلَّةِ إِبْرَاهِيمَ إِلَّا مَنْ سَفِهَ نَفْسَهُ» (البقرة/130)

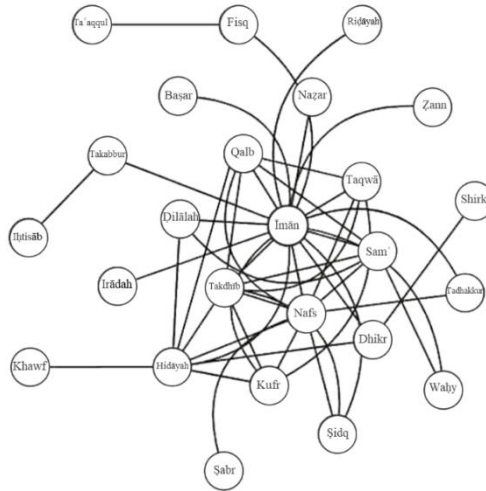


Figure 14. The conceptual map of consciousness-related concepts with co-occurrences more than ten times in the Qur'an

This graph includes important cognitive concepts related to human consciousness. The concepts, in the order of the number of repetitions and their connections, include *īmān* (faith), *kuf*r (disbelief), *nafs* (soul), *tagwā* (virtue), *Takdhīb* (denial), *dhikr* (remembrance), *hidāyah* (guidance), *shirk* (polytheism), *qalb* (heart), *ḍalālah* (misguidance), *khawf* (fear), *sam*' (hearing), *ṣabr* (patience), *tadhakkur* (recall), *ṣidq* (truthfulness), *baṣar* (sight), *wahy* (revelation), *irādah* (will), *takabbur* (arrogance), *naẓar* (foresight), *fisq* (immorality), *ẓann* (suspicion), *riḍāyah* (satisfaction), *ta'aqqul* (contemplation) and *ihtisāb* (assumption). The graph shows that soul, heart, hearing, and sight are the most frequently used tools for generating consciousness, which are extensively mentioned in the Qur'an and assigned various cognitive functions.

3.2. Analysis of the Graph of *Qalb* and *Nafs*

Considering the second question of the study and finding the most important tools of human consciousness in the Qur'an, we will examine the graph of *qalb* (heart) and its synonymous terms in the Qur'an, as well as the graph of *nafs* (soul) as two significant tools of consciousness.

3.2.1. *Qalb* (Heart)

The analysis of the connections between the heart and other consciousness-related terms represents that there are four types of

relationships between the heart and these terms from the perspective of the Qur'an (Figure 15):

- A) Having (a feature):** the heart possesses certain features and functions such as *īmān* (faith), *kufr* (disbelief), comprehension, *ta'āqqul* (contemplation), *tadabbur* (meditation), *khawf* (fear), *sakīnah/ikhbāt* (calmness), *ishmi'zāz* (abhorrence), *nīyah* (intention), etc.
- B) Getting (a feature):** the heart can get *hidāyah* (guidance), *ghaflah* (negligence) *ilhā'* (wandering), and *qisāwah* (inclemency).
- C) Being affected:** The heart can be affected by some external features that often reduce consciousness, such as, *khatm* and *tab'* (sealing). However, *nuzūl al-Qur'an* (revelation of the Qur'an), which was on the heart of the Prophet, is included in this category because it is considered an external factor that affects the heart.
- D) Doing:** the heart can refrain (*ibā'*) from certain things.

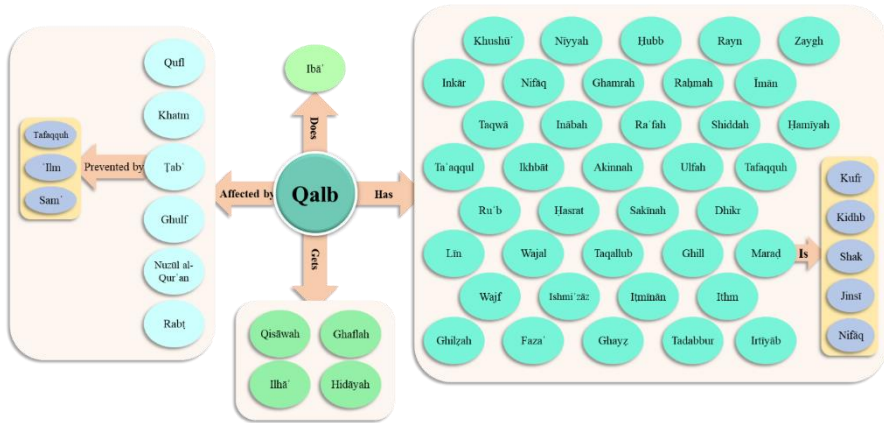


Figure 15. Graph of the connections of qalb with other consciousness-related cognitive terms in the Qur'an

It is also worth noting that among the functions of the heart mentioned in the Qur'an, only two terms, *dhikr* (remembrance) and *nīyah* (intention), are common with the concept of *nafs* (soul).

3.2.2. Af'idah (Hearts)

The connection of *af'idah* with other cognitive terms in the Qur'an is of the type of "having" that shows what characteristics, functions or abilities *af'idah* can have (Figure 16).

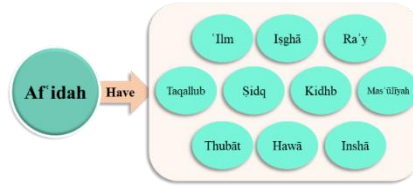


Figure 16. Graph of the connections of *af'idah* with other consciousness-related cognitive terms in the Qur'an

Furthermore, findings show that *af'idah* and *qalb* have two functions in common, which are *kidhb* (falsehood) and *taqa'llub* (variation), however *af'idah* and *şadr* (chest) do not share any similar function.

3.2.3. Şadr (Chest)

The term *şadr* (chest), according to the perspective of the Qur'an, has three categories of connections with other cognitive concepts related to consciousness (Figure 17):

- A) Having:** *şadr* possesses certain features and functions such as *nıyyah* (intention), *waswasah* (temptation), etc.
- B) Being position of:** This category demonstrates that *şadr* is the position of *qalb* and the Qur'an.
- C) Doing:** *şadr* can conceal (*ikhfā'*) secrets from the perspective of the Qur'an.

It is noteworthy that *şadr* and *qalb* have two functions in common, which are *nıyyah* (intention) and *ghill* (spite). Furthermore, they are both introduced as the position of the Qur'an.

Out of the eleven characteristics of *şadr* in the Qur'an (not counting being a position for *qalb*), seven characteristics, that is about 64% of its characteristics, are shared with *nafs*, which include *waswasah* (temptation), *nıyyah* (intention), *dayq* (tightness), *ħaraj* (straitness), *ħājah* (need), *dhāt* (essence) and *ikhfā'* (concealment). This issue shows that probably the meaning of *şadr* in the Qur'an is not the common meaning of the physical human chest.

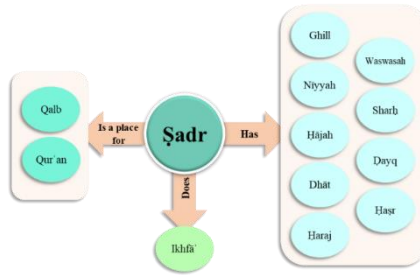


Figure 17. Graph of the connections of *ṣadr* with other consciousness-related cognitive terms in the Qur'an

3.2.4. *Nafs* (Soul)

The graph of *nafs* connections with other cognitive terms, as the most connected tool for creating consciousness, was drawn considering all meanings and uses of *nafs*, not just the meaning of soul (Figure 18). The subsequent graph only illustrates the connections of *nafs* meaning soul in the Qur'an (Figure 19).

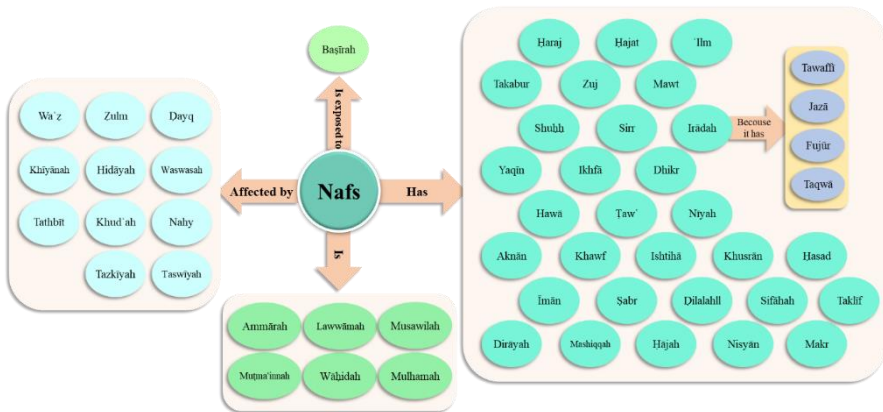


Figure 18. Graph of the connections of *nafs* with other consciousness-related cognitive terms in the Qur'an

This graph demonstrates that *nafs* as the most frequently used tool of consciousness has four types of connections with other cognitive concepts related to consciousness:

A) Having: *nafs* possesses several cognitive attributes and functions such as *dirāyah* (cleverness), *ilm* (knowledge), *yaqīn* (certainty), *zowj* (couple), *hawā* (craving), etc.

B) Being affected: Various factors can influence *nafs* such as *zulm* (injustice), *waswasah* (temptation), *taswīyah* (balancing), etc.

C) Being in a state: This connection represents that *nafs* can be in different states such as *al-nafs al-ammārah* (the willing soul to evil), *al-nafs al-lawwāmah* (the blaming soul), *al-nafs al-muṭma'innah* (the fully assured soul), *al-nafs al-mulhamah* (the inspired soul), *al-nafs al-musawilah* (the deceptive soul), and *al-nafs al-wāḥidah* (the unique soul).

D) Being exposed: *Nafs* can be exposed to *baṣīrah* (insight) of human beings. This connection is mentioned in verse Q. 75:14, which states, "In fact, people are well-aware of their own soul."¹

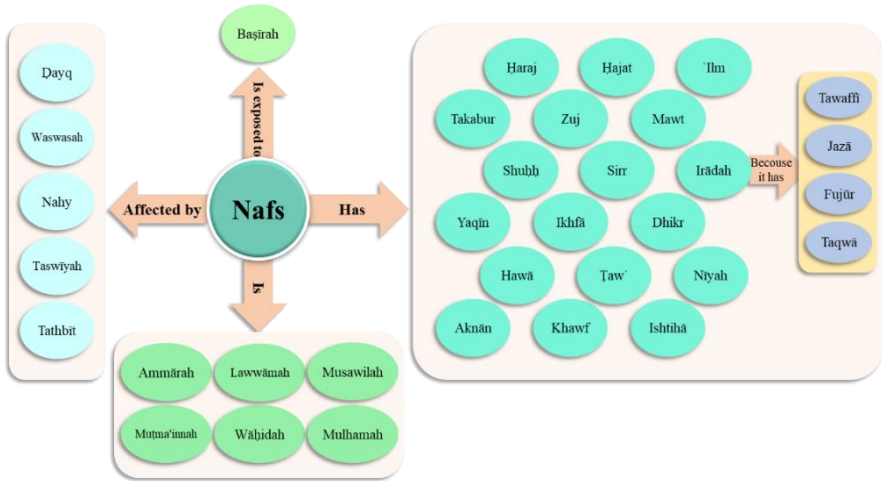


Figure 19. Graph of the connections of *nafs* only in the meaning of soul with other consciousness-related cognitive terms in the Qur'an

Examining the graph of *qalb* and *nafs* shows that despite the several similarities between their functions, Qur'an assigns the features of *mawt* (death) and *ilm* (knowledge) as well as *taswīyah* (balancing) only to *nafs*:

When it is properly shaped and I have blown My Spirit into it, you should then bow down in prostration (Q. 15:29; 38:72).²

Although most interpreters consider *taswīyah* to refer to balance in the human body (Tabataba'i 1996, 12:154; al-Ṭabarī 1991, 14:22; al-Ṭūsī 2002, 8:580), there is a view that believes that *taswīyah* is attributed to *nafs*, not

1. «بَلِ الْإِنْسَانُ عَلَى نَفْسِهِ بَصِيرَةٌ» (القيامة/ 14)

2. «فَإِذَا سَوَّيْتُهُ وَنَفَخْتُ فِيهِ مِنْ رُوحِي فَقَعُوا لَهُ سَاجِدِينَ» (الحجر/ 29؛ ص/ 72)

physical body, in this verse. *Taswīyah* was derived from the root "S,W,Y" meaning equality and moderation between two things, and in the form of verb means creating balance and equality. So what does creating moderation in humans mean? According to verses Q. 91:7-8,¹ the object of moderation is *nafs*, not the body, and the consequence of this balancing is the inspiration of immortality and piety to *nafs*. It seems that in the balancing stage, the human soul was equipped with the two forces of immortality and piety, and moderation was established between these two. Along with this event in the realm of the Kingdom, the divine spirit was blown into the soul (Q. 15:29; 38:72; 32:9). As a result, the blowing of the spirit is the origin of human's special perception of good and evil, and inspires piety to *nafs* while the physical creation is the origin of bodily needs and desires (*hawā*) (Q. 79:40), and inspires immortality, that causes the temptation (*waswasah*) for the soul (Q. 50:16). Thus, the human soul is influenced by his two dimensions, the earthly and the spiritual. It seems that with the improvement of human material creation, the soul was created, which had the ability to coexist with the divine spirit while being dependent on soil and matter (Rohani Mashhadi 2018, 71-72).

Having these three exclusive characteristics, i.e., *mawt* (death) and *ilm* (knowledge), as well as *taswīyah* (balancing) for the soul, along with its other characteristics, may indicate that God has chosen the name *nafs* for the human mind as a means of consciousness and has balanced it in such a way that it can be connected to the human body and brain. Although more extensive research is needed on this issue, clues to this debate have also been seen in cognitive science.

Hasker (1999, 189-190), as an emergentist, says, "The soul is not an external and additional component of the body. When the material parts are organized in a complex relationship and with the necessary proportion, the field of consciousness emerges and manifests itself." Chalmers' discussion of the fundamental nature of consciousness has similarities to the concept of *taswīyah* of *nafs* in the Qur'an. Chalmers claims that first, the evidence indicates the existence of consciousness; second, it is possible to conceive of a (physical) world without consciousness. Therefore, consciousness has been added (attached) to this physical world. To explain this attached consciousness (which is not reductive), what should we do? He answers that we should develop our ontology by adding consciousness to other fundamental forces. If someone asks how we know that our physical world possesses consciousness, Chalmers gives the famous and perennial answer, that is, introspection. The first-person introspection forms the basis of our

1. « وَ نَفْسٍ وَمَا سَوَّاهَا * فَأَلَّهَمَّهَا فُجُورَهَا وَ تَقْوَاهَا » (الشمس/7-8)

By the Soul, and the proportion and order given to it, and its inspiration as to its wrong and its right (Q. 91:7-8)

perception of consciousness. He takes first-person as a criterion for receiving introspection and says, "Our knowledge of conscious experience is primarily derived from ourselves, while external evidence at best plays a secondary (or incidental) role" (Zakeri & Hosseini 2017, 178-179).

In this way, based on the functions of *nafs* in the Qur'an and the recent discussions in cognitive science, some of which were mentioned, it can be concluded that the existential factor of human, which possesses consciousness, is likely *nafs*. It should be noted that *nafs* is completely different from *rūh* (spirit), yet they have sometimes been considered the same, in philosophy or interpretations of the Qur'an. The applications of *rūh* in the Qur'an show that it is not the agent of human consciousness, but rather this responsibility has been entrusted to *nafs* (Figure 20).

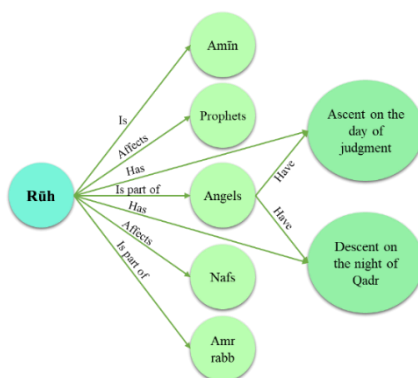


Figure 20. Graph of the connections of *rūh* in the Qur'an (Rohani Mashhadi 2021, 127)

5. Conclusion

The conceptual map created from terms related to human consciousness in the Qur'an shows that the concepts of *qalb* (heart), *nafs* (soul), *īmān* (faith), *kufr* (disbelief) and *ilm* (knowledge), which have co-occurrence with more than fifty other consciousness-related terms, constitute the central core of this graph. This can suggest that, for example, increasing faith can be associated with refining the soul and heart, increasing knowledge, and avoiding disbelief. This map also indicates that *nafs* (soul), *qalb* (heart), hearing (*sam'*), and sight (*baṣar*) are the most used tools for creating consciousness, which several cognitive functions attributed to them.

In total, 288 terms related to consciousness were extracted from 3268 verses, which were classified into five categories including the presence and

absence of consciousness, the agents of consciousness, emotions resulting from consciousness, tools of consciousness, and consequences of consciousness. This issue represents that in more than half of the verses of the Qur'an, i.e. 52% of the verses, attention has been paid to the discussion of consciousness and cognitive functions related to it.

According to the general and special features Qur'an assigns to *nafs* such as *mawt* (death), *'ilm* (knowledge), *taswīyah* (balancing), etc., it seems that *nafs* is a term chosen for the human mind in the Qur'an. *nafs* has been balanced in such a way that it can communicate with both earthy and spiritual dimensions of humans and lead them to consciousness. In other words, based on the functions the Qur'an introduces for *nafs*, as well as some recent discussions in cognitive science, it seems that the existential factor within humans, possessing consciousness, is likely *nafs*, which is completely different from the spirit (*rūh*), from the perspective of the Qur'an, however sometimes they are mistakenly considered the same.

Finally, it should be said that although the Qur'an possibly refers to the mind as *nafs*, further studies are still required to answer the question of what exactly *nafs* is, just as the precise nature of the mind has not yet been determined in cognitive science.

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