

Islamic psycho-immunological approaches in increasing immunity during the COVID-19 pandemic

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Abstract. The COVID-19 pandemic has a significant impact on mental health because it can increase the risk of panic, anxiety, and fear in society. New normal conditions with various limitations require people to be adaptive in order to cope with stressors that arise during the pandemic. This condition could interfere with mental health and adversely affect the body's immunity. Stress, through the nervous system, functions to help individuals move actively. In individuals who experience stress, the sympathetic system will activate various organs of the body causing the increment of blood sugar, blood pressure, muscle activities and metabolism which can reduce the immunity of individuals. Besides that, various efforts have been made as a form of controlling the spread of infection such as the application of health protocols, the concept of *Iman* (Faith), *Imun* (Immune), *Aman* (Secure), and vaccination. In addition, there are other efforts done by the Islamic religious people that hold approaches in the form of beliefs and daily life rituals, namely the concept of *Dua*, *Ikhtiar*, *Tawakkul*, and *Tawadhu* in facing the COVID-19 pandemic disaster. This concept is related to the psychoneuroimmunology aspect which, if applied correctly, can have an impact in finding mental resilience.

1 Introduction

According to the United Nations, individuals in the United States of America (45%), Iran (60 %) and Republic of China (35%) got distress during COVID-19. The Lancet Commission on global mental health and sustainable development reported that people are situated on a continuum from mild, time-limited distress to severe mental health conditions in COVID-19 pandemic. Many people are now less able to cope than before because of the stressors generated by the pandemic. Society tends to be in increasing anxiety and distress especially those who had less experience of these. Some get worsening conditions if once affected previously and even develop a mental health condition [1].

In response to the increasing number of COVID-19 cases in Indonesia, The National Task Force informs a program called *iman*, *aman*, *imun*, as the addition to "3M" program that stands for "*menggunakan masker*" (wearing mask), "*mencuci tangan*" (washing hands), and "*menjaga jarak*" (social-distancing). *Iman* means faith, *aman* means safety and *imun* means people

encouragement to maintain their immunity [2]. This concept is reflecting the values of faith in conjunction with spirituality as one of the main factors to pursue comprehensive protection against COVID-19.

As the pandemic continues and significantly affects the economy and social life, it's a challenge to prepare society, not only in terms of disease prevention, but also mental attentiveness. Mentally prepared state means a normal life to run along with the period of crisis caused of COVID-19. As distress is the ultimate risk of every individual during the pandemic, immunity is on the edge of its impact. Human body responds to stressors by activating the hypothalamus-pituitary-adrenal axis (HPA axis) that elevates cortisol level, suppressing the immune system. The vicious cycle of stressors and immune suppression carries harms towards psychoneuroimmunology.

The needed approaches are supposed to connect the spiritual aspect to the physical aspect, as implemented in Islamic point of view. all which are *dua*, *ikhtiar*, *Tawakkul*, *tawadhu*. *Dua*, such as a prayer to be avoided by disasters; *Ikhtiar*, such as complying with health protocols correctly, sorting information, and

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maintaining a lifestyle, as well as vaccinations; *Tawakkul*, such as accepting the situation and surrendering to God after doing the best we could; and *Tawadhu*, which is humbling so that we always stay alert of our conditions. This concept is in line with the mechanism of psychoneuroimmunology which explains the reciprocal effect of mind-body on immunity.[3] Islamic religious rituals have become a part of life, including depicting disasters as a test instead of a punishment that can definitely be faced so that we are out of despair.

The purpose of this study is to examine the approaches of the Islamic concept (*Dua*, *Ikhtiar*, *Tawakkul*, *Tawadhu*) in facing the COVID-19 pandemic regarding psychoneuroimmunology. This study is expected to be an insight for the society so they can be educated better through life rituals, related to surrounding characteristics and cultures to be easier accepted.

2 Method

This study used a systematic literature review with a descriptive method using search engines from databases such as Scopus, Science Direct, DOAJ, Google Scholar, PubMed, SpringerLink, and Sage. The following research questions directed the search strategy, including: i) What is the psychoneuroimmunology concept in Islam? ii) How does it influence immunity? and iii) How does the Islamic psychoneuroimmunology approach increase mental health resilience during the COVID-19 pandemic. To enable for a broader spectrum of literature to emerge from the searches, the databases were searched using the following key terms: “*Islam*”, “*mental health*”, “*spirituality*”, “*psychology*”, “*immunology*”, “*COVID-19*”, “*psychoneuroimmunology*” and “*HPA axis*” by adding Boolean Operator “AND” and “OR”. As an inclusion criterion, this review only considered articles published in English and Indonesian, then discussing the Islamic concept of psychoneuroimmunology. Articles that do not have full access were excluded from this review. The literature search was conducted from April 10 to August 10, 2021. The total minimum of 30 articles that met the inclusion and exclusion criteria, were included for further analysis.

3 Result and discussion

3.1 Stress and COVID-19 pandemic

During COVID-19 pandemic, people are constrained to adapt to regulations of social distancing, physical distancing, work from home, and school from home. However, this condition raises new problems, namely limitations in daily activities or living in quarantine. Recent evidence suggests that people who are kept in isolation and quarantine experience significant levels of anxiety, anger, confusion, and stress [4]. Research has also shown that frequent media exposure may cause

distress.[5] A systematic review and meta-analysis conducted by Salari et al. 2020 conclude that COVID-19 not only causes physical health concerns but also results in a number of psychological disorders (Figure 1) [6].

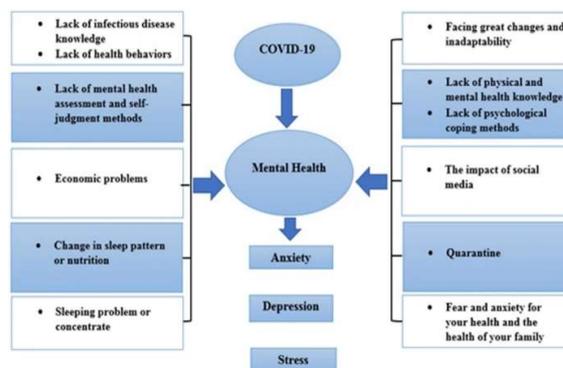


Fig 1. Impacts of COVID-19 pandemic on mental health [6].

Stress defined by Selye (1956) as the effects of anything that fatally threatens homeostasis [7]. Dhabhar-McEwen said that stressor (source of stress) will be responded by the brain (stress perception) then responded by other systems (stress response) [8]. Since COVID-19 has been stated as a pandemic, it unveiled some stressors due to unclarity and changes for all of sudden in certain vital sectors like health, economy and social life. Although the concept of “new normal” has been socialized, the demands to adapt to these conditions have become a challenge.

Physiologically, stress is divided into 3 stages known as the General Adaptation Syndrome (GAS): 1) Alarm Reaction Stages, refers to the initial symptoms of the body under acute stress and the “fight or flight” response. After the initial shock of the stressful event, the body begins to repair itself by lowering cortisol levels and normalizing the physiologic responses (i.e., blood pressure and heart rate). During this recovery phase, the body remains on alert until the stressful event is no longer an issue. However, if the stressful event persists for extended periods of time, the body will adapt to cope with the higher level of stress. The body will continue to secrete stress hormones which keep the body's physical response to stress elevated. This induces the second stage; 2) Resistance stage includes symptoms of poor concentration, irritability, and frustration. If the stressful event continues to persist, the body will enter the third stage; 3) Exhaustion Stage, symptoms of this stage include burnout, fatigue, depression, anxiety, and reduced stress tolerance. As the stressful event persists, the body's immune system will continue to weaken. This is due to the suppressive effects of stress hormones on cells of the immune system [9].

Although it seems that stress has only negative effects on the body, it actually also has advantageous effects. Stress which gives disadvantage on the body known as distress, and the one which has an advantageous effect known as eustress. Eustress energizes and motivates us to make a change. It gives us a positive outlook and makes us capable of overcoming

obstacles and sickness [10]. Distress or eustress depends on how the individual perceives the stress. If they feel that their coping skills are inadequate, they will experience distress. On the other hand, if an individual perceives their coping skills as adequate, they will experience eustress. Transactional Approach outlines that an individual's experience of stress is dependent on their appraisal of their ability to cope with the stressor (Figure 2) [11].

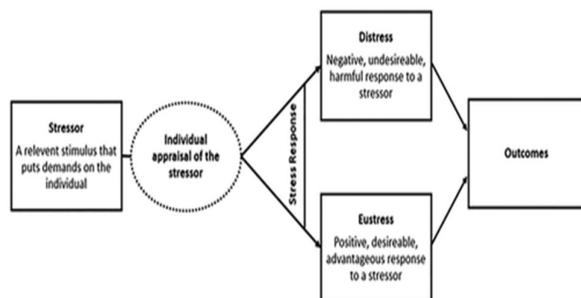


Fig. 1. A visual description of the partial-consensus definition of the stress process [11].

Distresses increase the risk of anxiety, anger, disappointment, frustration, financial problems, and stigma [4]. The most common stressors during the pandemic are fear and anxiety about the self-health and people surrounding [12]. The human body responds to stressors by activating molecular and cellular changes in the brain mediated by activation of the hypothalamus-pituitary-adrenal axis (HPA axis) which can elevate cortisol level. Cortisol suppresses the immune system [13].

Psychological stress and distress have been associated with higher levels of oxidative damage [14]. The mechanism remains unclear, and is likely mediated in part by stress-related hormones (e.g., cortisol) as well as health behaviors [15]. The first evidence that low-to-moderate doses of stress may have *beneficial* effects (“eustress”) emerged over a century ago as an “inverted U” relationship between arousal and performance (Figure 3) [16].

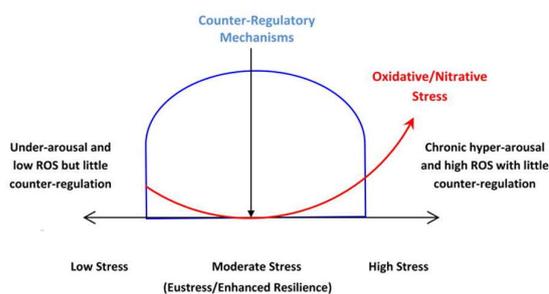


Fig. 3. Moderate Stress can enhance resilience [17].

Research by Aschbacher et al. shows that moderate level of stress perceived were associated with reduced levels of oxidative damage compared to low and high which supports the emerging model that chronic stress

exposure promotes oxidative damage through frequent and sustained activation of the HPA axis [17].

This proves that even COVID-19 is a real ordeal, but the wise reaction, *Dua, Ikhtiar, Tawakkul* and *Tawadhu*, towards the emerging stress, can maintain the level of stress under its high level.

3.2 The concept of *Dua, Ikhtiar, Tawakkul* and *Tawadhu* towards psychoneuroimmunology

In Islam, the stress management concept towards stressor is comprehensive. In disaster for example, there are three different point of views: 1) Disaster as *musibah*, which means something that befalls human beings in the form of something either pleasant or unpleasant. It is usually caused by human sins, including being ignorance of fact; 2) Disaster as *bala*, which means test (human promotion). *Bala* is God's will without human involvement. *Bala* aims to raise the human standing, forgive his sins and purify his soul. it's used in "...And We tried them with good (favours) and bad (disasters) in order to return (to the truth)." *Surah al-A'raf* [7]: Verse 168; 3) Disaster as *azab*, which means punishment (punishment of God). In the Qur'an, *azab* is interpreted as torture or an excruciating punishment inflicted by God only on those who are ungodly and do not believe. The religious leaders interpret the disaster that befell the people of the previous prophets such as the people of Prophet Shuaib, the people of Noah, the people of Prophet Lut, the People of Prophet Saleh and the tribe 'Ad people of Prophet Hud as a punishment for not believing [18].

The comprehensive concepts of stress management in Islam consist of *Dua, Ikhtiar, Tawakkul, and Tawadhu*. The concept is inseparable from the lives of Muslims can be a supporting modality in dealing with existing distress. *Dua, Ikhtiar, Tawakkul and Tawadhu* were the cultivated values in the perspective of Islam, including the people of Aceh, depicted from the daily religious life rituals. These spiritual activities give tranquility upon the individuals psychologically.

Dua is defined as an expression of the birth of conscience or feeling of need to ask for help or help from Allah (SWT). *Dua* is essentially an expression of submission of faith to God and of one's neediness. Two types of *Dua*: 1) *Du'ā al-mas'alah* (دُعَاءُ الْمَسْأَلَةِ *du'ā'u 'l-mas'alah*), or the 'dua of asking.' This type of *dua* is when one asks for the fulfillment of a need, or that some harm be removed from him/her. For instances, *Wakulja alhaqqu wazaqal batil, Innal batilaka nazahuka*, meaning: "And say, the truth has come and the falsehood has disappeared, and indeed the falsehood will be destroyed." (*Qs: Al-Isra'* [17]: 81) which used by Acehnese as part of ritual *Tulak Bala* (translate: Rejections of disaster); 2) *Du'ā al-'ibadah* (دُعَاءُ الْعِبَادَةِ *du'ā'u 'l-'ibādah*), or the 'dua of worship.' This type of *dua* includes every single act of worship. Examples would include when a Muslim prays or gives *zakāt* or fasts. Pajevic et al (2017) in his research towards 100 war veterans divided into two groups (practicing and not practicing daily praying) shows that practice groups

have a reduction towards risk, impulsiveness, and aggression than their peers who did not practice religion [19].

Besides supplicating through *dua*, Islam's view in guaranteeing someone's attainment is not separated from God's instruction to humans to make certain efforts, or so called *ikhtiar*. *Ikhtiar* means to endeavor to receive better results [20]. It is stated in *Quran* that emphasized the importance of *ikhtiar*, as follows, "God does not change the condition of a people unless they change what is in themselves", stated in surah 13 (Ar-Ra'd), verse 11. This indicates that no matter how truly someone does *dua*, it must be accompanied by effort. During COVID-19, *ikhtiar* might mean complying with some rules such as wearing a mask, washing hands and keeping a distance for each individual to hamper the transmission of the virus.

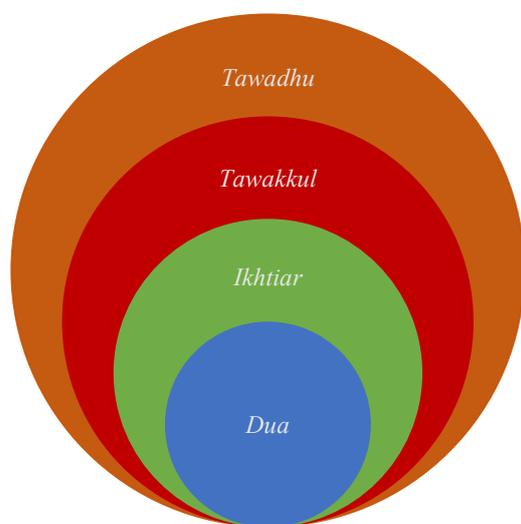


Fig. 3. The configuration of *Dua*, *Ikhtiar*, *Tawakkul* and *Tawadhu*.

After *dua* and *ikhtiar*, Islam also concerned about human's mind serenity by surrendering to Allah (SWT) following all prayers and efforts done. This is named *tawakkul*. *Tawakkul* is an Arabic word emphasizing the reliance on God or "trusting in God's plan" [21]. Being *tawakkul* also leads someone to do the efforts as best as they could and feel no regrets because they know Allah (SWT) is the best helper and no burdens He gives upon a soul more than it can bear, as stated in *Quran*, "God does not burden any soul with more than it can bear", surah 2 (*Al-Baqara*), verse 286. Peace upon someone's feeling after accomplishing hard work is a result after *Tawakkul*, as strengthen in *Quran* that said, "And whoever puts all his trust in Allah, He will be enough for him", surah 65 (*At-Talaq*), verse 3.

Islam concept in shaping someone wise in managing stress is also directing humans to be humble and keep sustaining good deeds, or named *tawadhu*. *Tawadhu* or humility indicates humans to stay alert of the recent conditions and do not be too satisfied as if no more efforts are needed. The Messenger of Allah (Peace Be Upon Him) has said, "*Allah has commanded me as follows: Show such humility that none of you boasts to*

others and none of you oppresses another" cited by Muslim, Jannah, 64 [22]. That statement is highlighting the importance of having sincere intentions wholeheartedly to sustainably follow the COVID-19 health protocols amid the pandemic, even in healthy condition or negative from COVID-19 test.

3.3 Psychoneuroimmunology in Islamic concept

Conceptualizing Islamic values as the approach in psychoneuroimmunology, in the form of religious-derived mindfulness practices, is considered as mind/body medicine. The mind/body medicine emphasizes the mental state of humans that is able to connect to the psychology and the physical aspect.[23] The mental state is maintained through meditation-based spiritual activities [24].

Several studies found out the improved neural-plasticity and the increased cerebral blood flow (CBF) in the transcendental meditation [25], the increment of abrineurin or brain-derived neurotrophic factor (BDNF) and the decrement of cortisol production in persistent Buddhist meditation [12], and the upgraded brain connectivity in long-term meditators [26]. Interestingly, brain imaging researchers have discerned brain anatomy changes in long-term meditators, like the increased brain cortical thickness in the areas processing sensory and attention [27, 28], and the improved grey matter density in the cerebellum, the temporo-parietal junction, the posterior cingulate cortex [29], and also the brain stem [30]. In addition, short term meditation, like a few hours of integrated mind-body training, is advantageous in enhancing white matter integrity of the superior and anterior corona radiata and corpus callosum [31]. It is also claimed that religious-derived mindfulness practices affect positively upon the psychological and physical sector and even become a part of stress-related disorders treatment [32-35].

There are two types of Islamic approach in mind/body medicine, which are *Al-tibb al-jismani* (physical medicine) and *Al-Tibb al-Ruhani* (psychological/spiritual medicine). Both approaches are related conjointly since in Islam point of view, human is having two main aspects, spirit (*ruh*) and body (*jism*). While it is different from modern medicine that focuses only on the physical aspect [36]. This explanation creates the balance between body and mind to reach overall peace and health of humankind. The implementation of this concept as shown in Table 1.

Table 1. The instances of *Dua*, *Ikhtiar*, *Tawakkul* and *Tawadhu* implementation along COVID-19.

	Pre COVID-19	During COVID-19	Post COVID-19
Dua	Asking for being avoided from illness	Asking for the sickness to be lifted	Ask for the healthiness
Ikhtiar	Following Health Protocols Getting vaccinated Filtering information and hoax	Getting COVID-19 test Report to healthcare facilities Following the doctors order	Following Health Protocols Filtering information and hoax
Tawakkul	Not being panicked Believe it could a <i>bala</i> , instead of <i>azab</i>	Believe that the sickness is a test from God	Being grateful for being healthy again
Tawadhu	Stay alert of the recent conditions not be too satisfied as if no more efforts are needed Keep following health protocols	Not blaming anyone (including ourselves) for our sickness	Stay alert of the recent conditions Keep following health protocols

In terms of COVID-19 that causes grief for all of the sudden adaptation and significant health and economic loss, the Kübler-Ross cycle presents five stages of grief. It consists of denial, anger, bargaining, depression and acceptance [37]. The concept of *Dua*, *Ikhtiar*, *Tawakkul* and *Tawadhu* is expected to speed up or cut the step as it is said that each individual does not always experience the whole stages. This approach also builds up a belief that any stress is supposed to be eustress instead of distress. This belief is created by several key points, which includes: i) *Dua*, it creates a belief that there is a higher power that will help us, it makes us feel not alone and be able to overcome the situations; ii) *Ikhtiar*, by doing everything at best creates a positive value which also provide us with solution and solving the problem; iii) *Tawakkul*, after the best action comes to a perceive that the result will be in line with our action; and iv) *Tawadhu*, which makes us keep on track and not overconfidence of our deeds so we will continue to do *dua*, *ikhtiar*, and *tawakkul*.

4. Conclusion

The concept of *Dua*, *Ikhtiar*, *Tawakkul*, and *Tawadhu* during the COVID-19 pandemic is useful in coping with distress conditions. Spirituality and belief, as well as

following health protocols appropriately, can suppress the body's response to stressors so that the body's immunity is maintained. It is expected that by implementing this concept, people will have a more resilient psychological state that provides a more robust immunity system.

Conflict of interest. The authors declare that there is no conflict of interest regarding the manuscript.

Author contribution. All authors are contributed equally to the content of the study.

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