

Evaluating the Effect of Fasting in Holy Month of Ramadan on Soul and Body: Fast, Messenger of Physiological and Psychological Security

Farideh Zafari Zangeneh^{1,*}

¹ Valiasr (AJ) Center for Reproductive Health Researches, Valiasr II Hospital, Imam Khomeini Hospital Complex, Tehran University of Medical Sciences, Tehran, IR Iran

*Corresponding author: Farideh Zafari Zangeneh, Imam Khomeini Hospital Complex, Vali-e-Asr Reproductive Health Research Center, Tehran, IR Iran. E-mail: zangeneh14@gmail.com.

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Context: Believers, fasting is decreed for you as it was decreed for those before you; perchance you will be cautious (Surah Al-Baghara, 183). The holy Prophet (SAW) also stated: "Fast and stay healthy". Islamic fast is an exquisite and especial method for proper planning to develop mental and physical health in fasting person. Fasting for a month, especially in the holy Ramadan, is the specific model for twelve month of life that can insure the health of fasting person for one year, because researches show that biological clock of the brain needs to be adjusted, annually. According to the holy Quran introductions and the traditions of holy Prophet, the biological clock of the brain should be adjusted within this month, since in this holy month the doors of God's mercy are open to his servants, and implying the specific model in this month may cause physiological and psychological coordination. Hence, biological clock of the brain will be adjusted by fasting and energy turns the light of physical and mental health for the next eleven months.

Evidences Acquisitions: Reports over the last decade show that any change in the lifestyle of patient can accelerate the treatment progress.

Results: Although Islamic fasting is not available in all religions, the principle of fasting exists in all religions which represents the domination of documented procedures on the human nature. Results of the current study showed that Islamic fast can be considered as the best model to improve physical health and relaxation; and reduction of crimes and violations in this month is derived from the relaxation that is naturally resulted from the adjusted basis of physiological and psychological homeostasis.

Conclusions: Personal and psychological arrangements can play an important role to adjust strong homeostasis in the physiological systems. This stable procedure or homeostasis helps physiological procedures to be stable and integrated even if any problems occur, and physiological stability cannot be replaced easily by pathologic factors; hereby the illness is prevented. Regulating the release of brain neurotransmitters, hormones secretion, and metabolic processes are the most important achievements of Islamic fasting that result in mental and physical health.

Keywords: Fasting; Biological Clocks; Lifestyle

1. Context

Anthropologists' studies showed that Bedouins before hunting, harvesting, and during witchcraft or sacrificing ceremonies to appease the angry gods, fasted. Fasting was sometimes done during spring to increase the land fertility and get more products. American Indians to destroy crop pests, and Mexican Indian tribes and Peruvian Incas to appease their gods, fasted. Ancient Egyptians fasted before religious feasts, but it was not an obligation. Also, Assyrians and Babylonians fasted to repent sins. Today, among proponents of eastern religions such as Hindus, Confucius followers, Taoists, and Buddhists fast especially in the valley of Tibet. The time and the quality of fasting are different among religions (1). According to the tenets of Abrahamic religions, fasting is among worships which

God has made it obligatory, in religions before Islam. For example, in versus 183 of Surah Al-Baghara, it has been clearly emphasized. Imam Ali (AS) stated that: "Fasting is an old worship which God has not exempted any ethnic group". In a hadith from Imam Sadigh (AS) it has been stated that: "the great heaven books, such as Torah, Bible, Psalms and Scrolls have been revealed in Ramadan" (2). In the Bible (Matthew, Luke, Paul, and Mark) fasting has been known as a cause of stability, purity and austerity of the spirit, which among them is a famous fasting of Jesus (AS). In Matthew, chapter four, Jesus (AS) had joiner fasting, without breakfasting, for forty days. Also, Moses (AS) fasted during the forty days waiting in Mount Sinai for Ten Commands. According to the book of "Deuterono-

Implication for health policy/practice/research/medical education:

The purpose of the present study was to encourage fasting in the holy Ramadan which provides an appropriate religious model and lifestyle.

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my”, Torah Chapter nine, he did not break his fast during these forty days. Of course this kind of fasting is miracle. The aim of fasting among Jewish is closeness to God. In this regard, “Day of Atonement” is the greatest and most important fasting day in Judaism. “Day of Atonement” or repentance fast is the most important religious annual event among Jewish. All Jewish classes respect this day, because they believe that within this day sins are forgiven (3).

2. Evidence Acquisitions

2.1. History of Fast in Islam

The history of fasting in Islam, for the first time, refers to the year six AH. The holy Prophet (SAW) after peace of Hadibiah went to Medina and in that city performed the ceremonies and actions of Ramadan and then, Shawwal. Islam considers especial respect for fasting. In the holy Quran God says that: “believers, fasting is decreed for you as it was decreed for those before you; perchance you will be cautious”. According to this verse, fasting existed in the former religions. To clarify this case, God has made an example in the holy Quran. Also, the holy Quran points to the birth of Jesus Christ (AS), and addressing the Mary (SA) says: “If you see any human being, say I have vowed for God”. Of course her fasting was desirable that became obligatory through vowing. But on the other hand, another message of these versus is the special attention of God to fasting and recommending it to the chosen ones.

2.2. Lexical Definitions

The word “Ramadan”, the month of Ramadan is the month in which the Quran was sent down (4). In the book of “Ghias-ul-loghat” the month of Ramadan has been described as: “Ramadan is the ninth month of Lunar year between Shaaban and Shawwal. Ramadan is a warm stone and the warm stone burns the feet of walkers, and it is possible that when naming this month, the weather was really hot. Or the word Ramadan which has been taken from three letters (R-M-Z) refers to the burning without smoke and ash. Since the month of fasting burns sins, the meaning of (R-M-Z) is burning the feet from earth warmth, because the fasting month causes self-entrusting and burning (5). In this regard, Ayatollah Jawadi Amoli says:” the word Ramadan has been derived from the root of “R-M-Z” that means “the intensity of heat” which is called the ninth month of Lunar year. To find the reason of naming this month different ideas exists, for example some said: 1) “ramaz” is called the rain which comes before autumn and washes the earth. Also, month of Ramadan washes human sins and purifies their hearts; 2) “ramz” also means “the heat of stone under the effect of solar radiation”. The fasting person feels the heat

of thirst and so like; 3) the phrase “ramaz-an-nasl” (va-na-sale-ramiz) means “he sharpened the arrow”. In Ramadan men sharpened the arrows to fight during Shawwal, before the forbidden months; 4) Ramadan is a divine name and sins will be forgiven by the mercy of God (6).

2.3. Names of Holy Ramadan

Ramadan is a divine name. Imam Ali and Imam Baghir (AS) have stated that: “Don’t call it just Ramadan, because it is a divine name, add “month” at the beginning, and so call it Month Ramadan to distinguish”. Ibn Arabi says: “Ramadan is a divine name and means “consistent” (7, 8).

Month of siam and fasting, avoid eating and drinking during certain time.

Month of Islam, month of submission and obedience to God.

Month of purifying, cleaning and purification (the month of scrutiny or the month of purification and release).

Month of uprising and standing, the reason that this month is called the Month of Uprising is that: 1) many desirable prays is set. Allameh Majlesi in Bahar-al-anwar (vol. 97), has allocated specific chapter to the desirable prayers, 2) since eating breakfast is recommended and many people wakeup during the nights to fast and answer the invitation of God. Also, Sheikh Sadough in a chapter of “rewards of mornings” in the book of “the ones who do not attend the lawyer” has cited seven stories from Infallibles (AS). The holy Prophet (SAW) during holy Ramadan was saying that: “praise to God that honored us with you, a blessed month. O God, make us strong and capable for fasting and uprising”.

Month of God, “the holy Month of Ramadan is also known as “Month of God”. Ramadan is the only month which has been mentioned in holy Quran. Hence, this month has a great virtue. Revelation of holy Quran and Lailat al-Qadr (Night of Power) in this holy month which is a month of fasting and spiritual worship of Muslims are among other valuable features of this holy month.

Month of Forgiveness, Allameh Majlesi has called holy Ramadan as “Month of Knowledge” in the book of “Bahar-al-anwar”. In another book “Sahifa al-sajjadiah”, this month also has been named as “Moth of Forgiveness and Mercy” (9).

Month of Repentance, the holy Prophet (SAW) says: “the month of Ramadan is the month of almighty and repentance” (10). The martyred professor Morteza Motahari (RA), regarding the great privilege and the exclusive features of divine movements, says: “reviewing the history, you will come to the fact that in religious movements, generally in Asian movements, the prophets provoked the person against himself. In fact, this is repentance. Repentance, which is an excellence state of humanities, includes the uprising of human against himself that is nat-

urally a reforming uprising. Once, I gathered the Quranic interpretations of repentance and found them very strange and impressive. Quran continuously reminds that repentance is an internal reforming rise; a rise of human conscience against him, and his prodigality and indulgency" (11). The great Leader of the Islamic revolution, Imam Khomeini (RA), in his book "Forty Hadiths" defines "repentance" as: "a return from ones nature to the self-spirituality, when the light of knowledge and spirituality turns into the darkness of the nature, because of the sins and darkness of disobediences" (12).

Month of peace and health, "they entered to him and said: 'peace" (13). Salaam (peace) and Salamat (health) are cognate words which mean rejection of risk or its essentials. Possibly one of the wisdoms of these Islamic mottoes, which have been emphasized in holy Quran and uttered for greetings, refers to this hadith from Imam Ali (AS): "any incoming person has a dignity, so first say hello (Salaam)" (14). Salaam (peace) is a name of God. In this regard the holy Prophet (SAW) says: "Salaam is one of the names of the God; hence say that among yourselves explicitly" (15). Salaam (peace) is an Arabic word from the root of the verb "S-L-M". In Farsi, the word "Doroud" is the synonym of "Salaam". When people meet each other, for respect and familiarity people say "salaam" (hello). Salaam is a prayer word, when someone says "salaam" to another, in fact wishes him health. In the Islamic prayer book of "mafatih al-jinan" (paradises keys) a prayer says: "o God, Salaam is your name and the health (salamat) is from you and for you and returns to you". The word "salaam" has been repeated in Quran seven times, and just one of them refers to the meaning of God (16). Regarding the real meaning of the word "salaam" in this verse, Alousi, one of the Sunnite commentators, believes that it means being away from defects (17). Fakhr Razi believes that the word "Salaam" has two meanings: A) being away from defects, and B) the cause of being healthy (18). Also, in the book "Tafsire Nemoneh" (unique interpretation) the word "salaam" refers to the man who never oppresses others, and people around him are safe (19). The martyred professor, Motahari regarding the relationship and the order for following of the three names of "Al-malek, Al-ghoddous, Al-salaam" believes that maybe the reason for following of the word "Al-ghodous" (sacrosanct) after "Al-malek" (Angel) is that when the human hears that all the power is in somebody's hand, because of his experiences, turns into the negative things such as oppression, injustice and avarice; but this illusion will disappear when the attribute of "Al-ghodous" comes after that. By disappearance of this illusion and fear from human mind, God mentions the word "Al-salaam" to show that the Almighty who is the owner is not oppressor, but gives blessing, and he is lovely (20). How nice it is to say that maybe using the word "Momen" (believer) after "salaam" is in fact the safety which lies in the blessing of God. What

is more beautiful is the word "Mohaimen" (dominant) after these words. The word "Mohaimen" has been derived from the root of "Haimaneh" and its applications show that it means the dominance of something to another, of course not every dominance does refers to "haimaneh", but it is the dominance in protection and maintenance, and also the dominance in all kinds of seizures (21). In fact, "Mohaimen" means something that was preserver, witness, vigilant, trustee, and saver of something (22). God in the Surah Al-Anbia, verse 69 says: "o fire, ' we said, 'be coolness and safety for Abraham". Hence, both Ramadan and Salamat (health) are synonym and the names of God which reflect fasting during the Month of Ramadan. The result of two findings as burning waste materials and burning sins in the soul is the relaxation and safety which are the spiritual and worldly reward of a month for a fasting person who is a believer and is constrained to Islamic rules.

3. Results

3.1. Fasting and mental-physical Health (Islamic fasting from psychophysiological point of view)

"But to fast is better for you, but if you knew" (23). Now, when God says: "Better for you", let's see how is it better, and what is better?

3.2. Effect of Fasting on the Rhythm of Circadian, Chronobiology or the Internal Biological Clock

3.2.1. Circadian Rhythm, Or Body Time!

Biological clock adjusts many vital functions of human, rhythmic or cyclic. In means that vital functions start in a certain time, last for a certain time, and end at the certain time. Heartbeat, respiration, hormones secretion, increase and decrease of body temperature, sleeping-awakeness, and women's menstrual cycle are among these functions. Rhythm means the repetition of a particular event in a given time. Biological rhythm is established in all creatures. In human, brain and the core which is called brain biological clock adjust this rhythm. The nature of this clock of brain, called "Suprachiasmatic Nucleus" (SCN), is nuclear and it is located in the hypothalamus, over the optic chiasm. This nucleus forms a pacemaker that acts as a circadian or biologic clock. Other important parts are Nuclei or the pineal, retina, and the retinohypothalamic tract. The role of light in resetting of circadian clock has been confirmed. It is noteworthy that the circadian rhythmicity starts by regulation of transcription. Hence, circadian system can act as a basis of biological cycles, such as sleeping-awakeness, in human beings. Therefore, any changes during this circulation and disruption of the rhythm cause pathological dis-

orders. For example, shift-work sleep disorder specifically refers to the circadian rhythm disorders (24).

3.2.2. *Biological Rhythm of the Body*

The main rhythm of the body is circadian rhythm. Circadian rhythm almost takes 24 hours. The rhythms less than 24h called ultradian (sleep-wake clock), and rhythms longer than 24h are called infradian (women's menstrual cycle). Biological clocks are physiological systems which allow creatures to regulate themselves with the natural rhythms (such as day and night, and seasons change) and this way provides survival conditions.

3.2.3. *Synchronization of Body Clock with Rhythm of Life*

Biological clock controls many behaviors in human. It has happened for many people to wake up in the morning, without clock ringing; and although they are being awakened from deep sleep, they feel ready to start daily works. Maybe it is hard to believe, but it is true; internal biological clock of human regulates several daily activities. If this clock is fast, slow, or stops for some days, the rhythm of the life will be disrupted, which results difficult conditions. Maintaining the rhythm of circadian is important for mental and physical health. Disruption of sleep-wake cycle has different effects. Apparently the body has circadian rhythm for various organs (25). Disruption in light-dark cycle cause disruption in circadian rhythm of body temperature, weight gain, and also leads to increase in leptin and Insulin levels (with normal glucose range). Experimental studies show disruption in circadian rhythm and fewer neural structures in the cortex of rats that live under 24 h lighting. When the rats were trained, they learned how to change their behaviors since they encountered with new conditions. It confirms the incidence of frontal lobe dysfunction in rats. The performed experimental-behavioral studies confirm the presence of potential mechanism for the effects of circadian rhythm disruption on mental and physical health (26). In this situation, metabolic changes occur which include disorder in leptin that regulates food intake. This disorder causes insulin disorder, which regulates glucose usage and lipid sedimentation. These changes are similar to the metabolic syndrome of insulin resistance in human. Therefore, it confirms the theory that disruption and confusion in circadian rhythm cause chronic stress, following the irregularity of hypothalamic-pituitary-adrenal axis (26). Finally, circadian rhythms of behavioral and psychological processes regulate with suprachiasmatic nucleus at hypothalamic level. Central oscillator nucleus (as a transducer) transforms the optical data to the peripheral cellular clocks, by autonomic nervous system and neuroendocrine system. In other words, these two systems work as an executive agent of hypothalamic-immune communications. Circadian rhythm

confusion causes irregularity in the function of immune system (27). Recent studies reported finding some circadian clock genes in immunological responses. What is more important is that natural killer cells are known to be under the control of circadian (28). According to Logan (2011) there is a close relationship between circadian rhythm of immune noradrenaline and cytokines of spleen. Noradrenaline plays a modulatory role in the molecular clock of killer neutrophils, since clock genes and Bmal1 and Per2 proteins of these tissues are significantly correlated with daily changes (29). Considering the findings of the studies conducted in the recent decade, it is clear why insomnia and poor sleep cause mental disorders such as irritability, impatience, and nervousness; therefore by decreasing the ability of immune system susceptibility to diseases occurs. This mechanism is used for torture, which is a mental and physical suffering for tired prisoner.

3.2.4. *Rhythm of Circadian and Melatonin*

Neurohormone Melatonin was first identified by Lerner (1959), this neurohormone is secreted by pineal gland during night (30). Secretion cycle of melatonin plays an important role in distinguishing the time of darkness in creatures (31).

3.2.5. *Regulation of Sleep-wake Cycle in Light, Circadian Rhythms: Morning People (Early Risers), and Wakeful People (Night Owls)*

People with dominance of morning circadian rhythm, early risers, wake up from 5 to 7 in the morning, and go to bed from 21 to 23 p.m. Night circadian rhythm dominant people, night owls, wake up from 9 to 11 in the morning, and go to bed from 23 p.m to 3 a.m. of course most people are placed between these groups. Early risers have less flexibility. These people are less adapted to the environmental changes, and accept them with more difficulty. The body temperature of early risers reduces before 20 p.m and reaches its peak in the early afternoon. Consciousness level of early risers reaches maximum in the early afternoon. Scientists believe that night owls are less dependent on light to regulate their sleep-wake cycle hence, they have more control on their internal rhythms (32).

3.2.6. *Effect of Fasting During the Holy month of Ramadan on the Brain Biological Clock/Sleep-wake Cycle (Sleep Health)*

“As for the night there is a voluntary deed for you to keep vigil in part it. perhaps your lord will raise you to a praiseworthy station” (33). Here according to the Arabic version of this verse, the words “watch” and “sleep” are cognates. Many literati believe that “watch” means

“awakening after sleep for worship and praying”. Hence, the “watch” refers to the ones who rise during the night for night prayer, which is an additional prayer. All commentators believe that this verse refers to the holy Prophet (SAW). “O Muhammad, pray in the small watches of the morning that additional payer is the obligatory on you” (34). One of the emphatic commands of Islam religion is early rising. The Almighty has considered the stimulant factor of light to awaken brain to start daily activities, and the absence of light or darkness for relaxation, “and we made your sleep a rest” (35).

Early Rising of the Nature, we have to learn the early rising of the nature. Today, it has been proved that photosynthesis phenomenon of the plants starts with dawn, and stops with dusk. When the sun sets and the night come, cosmic energy increases. It has been proved that energy of the universe increases during the night and the nature is relaxed. Hence, human also should be relaxed. In this regard God in holy Quran says: “and we made the night for your relaxation”. This is the reason why during the night when the energy is in maximum, sleep gives more relaxation. During the night, when the body is resting and activities are reduced, the brain chemicals which have been used during the day are being reconstructed and restored. Recent studies show that during quiet sleep or NREM (non-rapid eye movement sleep), the body is engaged with reconstruction and production of tissues, building bones and muscles and improvement of immune system. The effect of NREM decreases by getting older. This is the reason why infants sleep more. The maximum energy of the universe (reconstructions and human cell proliferation), and also the nature is before sunrise. From the viewpoint of universe and cosmic energy, from Morning Prayer call to dawn is the best time. Intuition life of the nature is to look at it, and live with it according to what you have inspired form it. Health secret of all creatures is to identify their quiddities and live intuitively with the nature, which is created by God without human intervention. One of the main elements of sleep health in Islam is early rising (36).

3.3. Neglecting the Natural Blessings and God Handouts

Human Health enemy, neglecting the scientific-experimental knowledge is the greatest enemy of human health. Imam Ali (AS), to express the (psychological-physiologic) relationship between body and soul, simply and beautifully says: “minds, are the leaders of thoughts, and thoughts are the leaders of hearts, and hearts are the leaders of senses, and senses are the leaders organs” (37). It means that human wisdom is the leader of his organs. Hence, wisdom is the main source of human knowledge and science about himself and his environment. On the other hand, Imam Ali (AS) believes that science and experience

are involved in main improvement agents; since wisdom is an instinct which improves with the knowledge and experiences (38). Wisdom is an instinct which develops with experiences, and the experiences are interminable (39). Therefore, wisdom and knowledge, improve each other. In this regard, Imam Ali (AS) says: “wisdom never damages his owner; but knowledge without wisdom is a big disaster” (38).

This is a poem which has been attributed to Imam Ali (AS). In this poem, wisdom and knowledge and their relationship in paving the way of perfection have been likened to the shoe and foot. It means that if you have knowledge without wisdom, you look like a man who has shoes, but has no feet; if you have wisdom but you are not knowledgeable, you look like a man who has feet, but has no shoes. A man, who has feet but no shoes, can walk, even though hard; but shoes without feet are useless and no way can be walked (40). If man believes that fasting brings mental and physical relaxation, he does not care for the thirst and hunger, and contents to two meals of breakfast and dinner. If thirst and hunger can provide physical immunity, the main factor to give mental and physical relaxation is the secret which lies in waking up in the morning and early rising.

Relationship between wisdom and experience (Intuition), Islam believes that early rising has many blessings, and wisdom and knowledge prove it. Quran encourages human to early sleeping and early rising; “establish the prayer at the decline of the sun till the darkening of the night and the Quran recital at dawn. Surely, the Quran recital at dawn is witnessed” (41). “O you (prophet Muhammad) wrapped, rise (to pray) the night except a little; half the night, or a little less or a little more; and with recitation, recite the Quran” (42). “Truly the rising by night is most potent for governing (the soul), and most suitable for (framing) the word (of prayer and praise)” (43). Late Kolehini, Sheikh Sadiugh and Sheikh Tousi, by valid documents, reported that Hisham Bin Salem who has cited from Imam Sadigh (AS) stated that in the mentioned verse, the early riser means the man who just trusts in Almighty (44). It has been cited from Imam Bagher (AS) and Imam Sadigh (AS) that the meaning of early rising in this verse, is just for desirable prayer (44). The word “so-hour” and “tasahhor” mean “early rising” and “having a light meal before dawn”. Ibn Manzour says: “dawn is the time to eat and drink” and Ibn Asir believes: “sohur” is the name of anything which is eaten or drunk at dawn, and “sohur” is the infinitive form. This word has been mostly mentioned in the form of “sohur”, but it has been stated that “sohur” is the more reliable form. Because “sohur” means food and blessings, and not a deed; also remuneration and reward is being given according to eating a light meal before the break of dawn (for fasting), and not eating food. After the advent of Islam and obligation of fasting on Muslims these words found an especial mean-

ing in Muslims tradition with preserving their original meaning In Islam, these two words have been used as early rising during holy Ramadan and eating a light meal to be able to fast, and in the narrative literature they have been used similarly” (45). Early sleeping and giving enough time to the chemicals and organs for reconstruction and then early rising cause mental and physical health. Studies in the recent decade show that proper lifestyle is the health secret of human society. Islamic fasting with its spiritual property is the most significant and responsible model to maintain mental and physical health. Today, researchers admit that most of the diseases such as cancer, cardiovascular diseases, and diabetes can be treated through reforming the lifestyle (46-48).

4. Conclusions

Fasting during holy Month of Ramadan starts by declaration of sighting the moon of Ramadan and having the intention, and ends with sighting the moon of Shawwal and paying zakat fitrah. Imam sadigh (AS) says: “completion of fasting depends on payment of zakat fitrah, whereas the blessings on the holy Prophet is the perfection of the prayer” (49). Also, Imam Sadigh (AS) to express the features of a believer said: “he leaves the lust and unrestraint, therefore he is free”. There is no gift better than freedom, not being involved in lust, wrath and passion, and not following the desires (50). The great Islamic lawyers such as late Sahib Jawahir Al-kalam (RA) said: “in virtue of fast it is enough to say that man is similar to the angels, regarding leaving many sins. As much as the man is free from the thought of eating, he approaches to be an angel (51). At the end of a month of fasting, the Passover (Eid-ul-fitr) arrives, Eid or a new day of being free from the others, with the growth of fragrant blooms of Ramadan’s spring, and also release from the bonds of passion, just like Eid al-adha after observing the rites of Hajj, the fasting person rises from these two great feasts with a common prayer to thank this servitude and get the sincerity of the Almighty. Praying shows the sincerity and purity with the intention of sincere request of protection. The worshiper with repeating a Ghonout which is said after praising God and blessings to holy Prophet and his inmates for nine times to request sincerely the blessing and protection from whom the worshiper has turned to. The first day of Shawwal is Eid-ul-fitr since it is backed by holy Ramadan, and the greatness of Shawwal is because of its synchronization with holy Ramadan which is followed by purifying and then meeting God. The reason of greatness of Shawwal is the feast of holy Ramadan which is the result of man’s try for a month, for purification. “O God, I ask you best of the things that righteous people ask you, and I seek your protection which has recovered your faithful (righteous) people”. God obligated fasting for people, to examine their sincerity” (52).

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