

REVIEW ARTICLE

Improving Nutritional and Food Security Status in Muslim Communities: Integration of Quranic Practices in Development Programs: A Review

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ARTICLE INFO

Keywords:

Breastfeeding
Food security
Muslim communities
Nutrition
Quran

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Received: June 19, 2018
Revised: July 15, 2018
Accepted: July 21, 2018

ABSTRACT

The purpose of this paper was to illustrate and to assess the Islamic perspective of nutrition and food security in the light of Quran. Quran is a book of social guidance, politics, law, principles and science. Quran has nutrition and food security related clear messages. There are 64 nutritional keywords and 257 nutritional verses (Ayahs) are in Quran. The aliment, eating, water/drinking words, and their derivatives are repeated 171, 109, and 131 times, respectively. In Quran 19 plants are mentioned. Allah tells people that he feeds people, preventing hunger, and provides safety and peace, keeping them from fear. However, this condition of change in sustenance was associated in the Quran with various accounts related either to Allah's management or to people's works. Quran's message is clear on breastfeeding, healthy eating, food safety and hygiene, distribution of food, availability of food and utilization. There are eight verses of the Quran on mother's milk. Breast feeding is mandated by Allah for two years which has been proven to be extremely important to the infant's in terms of body growth, intellectual development and enhancement of psychosocial bonding. Father is responsible for wet nursing to finance. Allah allows and orders people to care about food quality in all forms and stages of handling: from choosing soil for cultivation, storing pure food, to eating fresh food or using food wisely and food adulteration is prohibited. The recommendation would be to use information from Quran for better nutritional outcome at target Muslim communities.

Please cite this article as: Khalid SMN, Sediqi SM. Improving Nutritional and Food Security Status in Muslim Communities: Integration of Quranic Practices in Development Programs: A Review. Int J Nutr Sci 2018;3(2):65-72.

Introduction

Muslim Population in the World

Muslim are living in more than 200 countries in the world (1). Asia has 69% of the world Muslim population while Africa has 27%. In addition, Muslims constitute 24% of the world population, or 1.65 billion people. This is expected to increase by

over one percentage point each decade, reaching one out of four by 2020 and one out of three by 2075. The number of Muslims around the world is projected to increase rapidly in the decades ahead, growing from about 1.6 billion in 2010 to nearly 2.8 billion in 2050. Muslims are expected to grow twice as fast as the overall global population. Consequently, Muslims are

projected to rise from 23% of the world's population in 2010 to 30% in 2050 (2).

Quran, Nutrition and Food Security

Quran is the holy book of Muslims. It is revealed 1448 years ago on Prophet Mohammad. Today there is a big number of Muslim using Quran. This holy book in addition to a book of social life, politics, law and principles (3), is a book of signs of science as well (4). The Holy Quran is regarded as the primary behavioral and religious guidance for all Muslims around the world (5). There are specific verses about nutrition and food in the Quran which are further illustrated by the Hadiths (sayings and teachings of the Prophet used to model a Muslim's conduct). It also explains how people should eat, feed others and stay healthy through a better diet. The issue of nutrition and food security is so important in Quran (3).

With 28 verifiable verses identified in the Quran, a significant emphasis places proper diet and nutrition as part of a healthy lifestyle. Many of these verses contained a focus on fruit consumption with a progressive focus on plant-based dietary patterns and the importance of limiting caloric intake by avoiding "excess" (3). Today in the world, there are major investments on nutritional awareness, breastfeeding, diet diversity and foods for health. Though many people practice one or other religion which has some guiding principles about what its followers should eat or not and how should they eat. But in most circumstances, those religious principles are not followed and the wheel for good practices is reinvented. Therefore, it increases the potential of negative impacts of nutrition on the individual, regional and global community. The risk of malnutrition (both over nutrition and under nutrition) increases and this is harmful to a huge population around the world (6).

It is important to note the Islamic concept of change: that Allah changes not the conditions of a group of people (including availability of bounties and food) until they change what is in their souls, i.e., their behavior and compliances [Al-Quran: 13:11 and 8:43]. God tells people (Muslims and non-Muslims) that the book he sent them, the Quran, includes all needed management particulars and rules for all aspects of their life and related activities [Al-Quran: 6:155, 11:1, 14:1, 18:49, 38:29, 41:3 and 57:22]. This includes food management particulars and rules (7-9).

The general objective of this paper is to assess and evaluate the Islamic perspective of nutrition and food security concepts. It will also present and discuss the authors' perspectives. The study will specifically provide recommendations in the three areas including (i) contribute to the behavior change

of mothers on improving breastfeeding practices, (ii) to share the 14 century old divine message which is evidence proofed today by science that can help prevent mortality of a big number of children and others due to nutritional and food security problems, and (iii) provide some principles for nutrition and food security program designers to consider the specifics from Quran and Hadiths which may increase the effectiveness of implementation of the program and increase outcome and impact level results in Muslim communities.

Results

Foods Mentioned in Quran

According to a study sixty-four nutritional keywords and 257 nutritional verses are in Quran. The aliment/foods, eating, water/drinking words, and their derivatives are repeated 171, 109, and 131 times in the Quran, respectively (6). According to the Quran, except Haram foods (pork meat, wine, carrion meat, blood, and meat of animals not slaughtered properly in the Islamic manner), all foods are tayyeb (lawful) (10, 11). Overall in Quran, there are names of 19 plants (3) which can be used either as food or as a medicine.

The plant species in the Quran are *Alhagi maurorum*, *Allium cepa*, *Allium sativum*, *Brassica nigra*, *Cinamoumon camphor*, *Cucumis sativus*, *Cucurbita pepo*, *Ficus carica*, *Lens culinaris* Medic, *Musa sapientum*, *Ocimum basilicum*, *Olea europaea*, *Phoenixdactylifera*, *Punica granatum*, *Salvadora persica*, *Tamarix aphylla*, *Vitis vinifera*, *Zingiber officinale* and *Ziziphus spina_christi*. Among them, some are mentioned more for example dates are mentioned 20 times in the *Quran* using several terms such as *nakhil*, *al-nakhl*, *rutob* and *nakhlah*, while grapes are mentioned 11 times in the *Quran* using terms such as *a'nab* and *al-a'nab* (11).

Allah created resources including food as a means to enable sustenance: good in quality, easy and simple in structure, that enabled creatures to use it [Al-Quran: 14:20, 10:31, 39:4, 2:22, 16:72, 40:64, 8:26, 7:10, and 71:19]. Allah created resources including food available for development and use for all creatures and for different purposes and use [Al-Quran: 44:4, 44:12, and 14:32]. Allah created resources including food in a way able to change in state, shape, color, touch, structure, etc. [Al-Quran: 67:14 and 14:10]. Allah created resources including food as a test to their users/producers. Allah tells Muslims that resources are given to them free but as a test of their deeds, to test which of them will do most good with the resources (food) by providing better, more beneficial deeds (to themselves, to people and the surrounding environment) [Al-Quran:

2:155, 11:7, 18:7, and 67:2]. Few plants mentioned in Quran has high nutritional and medicinal value. Examples are as follow: Fig (*Ficus carica*): The nutritional profiling of the dried fig fruit indicates that it is a good source of carbohydrates and minerals like strontium, calcium, magnesium, phosphorus and iron. Phytochemistry of the fruit revealed the presence of total phenolics, flavonoids and alkaloids. The extract also has antibacterial activity and showed zone of inhibition against *Proteus mirabilis* and *Bacillus subtilis* (12, 13).

Olive (*Olea europaea*) fruit contains appreciable concentration, 1–3% of fresh pulp weight, of hydrophilic (phenolic acids, phenolic alcohols, flavonoids and secoiridoids) and lipophilic (cresols) phenolic compounds that are known to possess multiple biological activities such as antioxidant, anticarcinogenic, anti-inflammatory, antimicrobial, antihypertensive, antidyslipidemic, cardiogenic, laxative, and antiplatelet. Other important compounds are pectin, organic acids, and pigments. Virgin olive oil has of high levels of monounsaturates and other valuable minor components such as phenolics, phytosterols, tocopherols, carotenoids, chlorophyll and squalene. Olive oil phenolic compounds have positive effects on certain physiological parameters, such as plasma lipoproteins, oxidative damage, inflammatory markers, platelet and cellular function, antimicrobial activity and bone health (14, 15).

Pomegranate (*Punica granatum* L.) is a nutrient dense fruit that is rich in phytochemical compounds. The edible part of the pomegranate fruit consists of arils and seeds. Arils contain 85% water, 10% total sugars, mainly fructose and glucose, and 1.5% pectin, organic acid, such as ascorbic acid, citric acid, and malic acid, and bioactive compounds such as phenolics and flavonoids, principally anthocyanins. Phenolic compounds, together with flavonoids, anthocyanins, and tannins, are the main group of antioxidant phytochemicals that are important due to their biological and free radical scavenging activities. Pomegranate's therapeutic benefits is attributed antioxidant, anticarcinogenic, and anti-inflammatory properties. Pomegranate juice has shown significant antiatherosclerotic, anti-hypertensive, antioxidant effects in human subjects and mouse models (16-18).

Regarding grapes (*Vitis vinifera*), epidemiological evidence has linked the consumption of grapes with reduced risk of chronic diseases, including certain types of cancer and cardiovascular disease. Grapes have strong antioxidant activity, inhibiting cancer cell proliferation and suppressing platelet aggregation, while also lowering cholesterol. Grapes contain a variety of phytochemicals, like phenolic acids, stilbenes, anthocyanins, and proanthocyanidins, all

of which are strong antioxidants (19).

Date (*Phoenix dactylifera* L) have been a part of human diet and is proven to contain high levels of carbohydrate, proteins, vitamins, crude fibers and essential minerals. Date has laxative, anti-inflammatory activity and is used for nutrient deficiency in malnutrition prevention. Many studies have shown that date fruit has antioxidant, antimutagenic, anti-inflammatory, gastroprotective, hepatoprotective, nephroprotective, anticancer and immunostimulant activities (20-22).

Wheat (*Triticum aestivum*) has played an outstanding role in feeding a hungry world and improving global food security. The crop contributes about 20 % of the total dietary calories and proteins worldwide (23). Ginger (*Zingiber officinale*) contains natural organic materials beneficial to health and enhances resistance to infectious diseases by increasing non-specific and specific immune mechanisms. The rhizome of ginger has shown to be effective in the control of a range of bacterial, viral, fungal and parasitic diseases in humans, poultry and aquaculture owing to its antimicrobial, antioxidant, growth promoter and as immunostimulant properties to health (24).

Food Security in Quran

In the World Food Summit in 1996, the food security was defined as, "Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life". This widely accepted definition points to the following dimensions of food security (25). (i) The availability of sufficient quantities of food of appropriate quality, supplied through domestic production or imports (including food aid), (ii) Access by individuals to adequate resources (entitlements) for acquiring appropriate foods for a nutritious diet. Entitlements are defined as the set of all commodity bundles over which a person can establish command given the legal, political, economic and social arrangements of the community in which they live (including traditional rights such as access to common resources) (26).

(iii) Utilization of food through adequate diet, clean water, sanitation and health care to reach a state of nutritional well-being where all physiological needs are met. This brings out the importance of non-food inputs in food security. Stability of food and to reach a secure food, a population, household or individual must have access to adequate food at all times. They should not risk losing access to food as a consequence of sudden shocks (e.g. an economic or climatic crisis) or cyclical events (e.g.

seasonal food insecurity). The concept of stability can therefore, refer to both the availability and access dimensions of food security. Islamic regulation has a balanced management approach to food management and towards attaining sustainable food security. This approach includes many social, spiritual, resource supply, security, and institutionally-related perspectives (26).

If harmonization between Allah's orders and human behavior was maintained, either within or outside an Islamic state, food security would already be happening, succeeding, and sustaining, regardless of time or space (7). The following Islamic food practices and values are obligatory and found to be directly related to the prime Islamic pillars such as a Muslim's faith, righteousness, destiny and dignity, meaning that food security has a high importance and weight in Islam and Muslim daily practices:

Availability of Food in Islam

In the Quran, Allah tells people that he feeds people, preventing hunger, and provides safety and peace, keeping them from fear [Al-Quran: 106:4 and 5]. However, this condition of change in sustenance was associated in the Quran with various accounts related either to Allah's management or to people's works [Al-Quran: 30:37, 39:42, 29:62, 28:82, 17:30, and 13:26]. Food and sustenance charity in Islam is ordered by Allah for those in need [Al-Quran: 2:273, 71:24, 41:19, 30:38, and 17:26]. Islam is rich in rules, orders and practices asking Muslims to give and share their sustenance with others in society and, accordingly in a Muslim society, social equity is maintained and poverty is minimal, if Islamic practices are followed [Al-Quran: 64:7, 63:10, 34:29, 22:2, 14:31, 9:3, 71:24, 41:19, and 30:38].

Access to Food

It is forbidden for Muslims to repulse petitioners including food petitioners [Al-Quran: 93:10]. A friend should give and share his sustenance with friends without waiting for them to ask for his support [Al-Quran: 70:10]. In giving and sharing, Muslims should seek the needy, especially those who are shy or do not ask for sustenance [Al-Quran: 16:46, and 2:273]. Giving and sharing by Muslims should first be for parents and kindred, and orphans and those in want, and for way farers [Al-Quran: 2:177]. Sharing and giving by Muslims is a loan to Allah and Allah will reward the doers in manifold (meaning many times) ways of what they give [Al-Quran: 47:11]. A Muslim should give for the benefit of his own soul and to run away from material thinking [Al-Quran: 64:16].

A Muslim should give and support the needy secretly and openly (secretly is better), in the hope

of a transaction with Allah that will never fail [Al-Quran: 34:29]. This giving and sharing should not be followed by reminders of their generosity or with injury [Al-Quran: 2:262, 23:72, 11:29, and 9:48]. A Muslim should not be covetous (greedy/desirous) or feel bad or hate the process of giving and sharing of his sustenance with others in need [Al-Quran: 9:46].

Utilization (Food Safety and Diet Diversity in Quran)

God recommended believers eat the cleanest and purest blessings that we have provided you. Quran has specific mentions about plant preservation and harvest storage (27). Allah allows and orders people to care about food quality in all forms and stages of handling: from choosing soil for cultivation [Al-Quran: 7:48]; storing pure/good food [Al-Quran: 8:37, 4:100, and 3:179]; to eating good fresh food [Al-Quran: 3:141, 7:147, and 20:81]; or using food wisely [Al-Quran: 17:27, 7:31, and 4:6]. Mischief (including food mischief meaning malpractice, harm/damage/pollution/adulteration and misbehavior) is not accepted in Islam and not loved by Allah [Al-Quran: 28:77, and 2:204]. Allah calls upon people not to commit mischief in any form, and a Muslim should therefore not commit mischief [Al-Quran: 2:260]. A Muslim should give and share from his sustenance (food/nutrition) the part he likes most or the best quality of what he has [Al-Quran: 3:92, and 2:267].

Stability

It is stated that bounties of and from Allah (including food) are given freely to all creatures (regardless of religion) and not denied any one of them [Al-Quran: 17:20, and 39:36]. Also Allah assured all creatures including humans that there is sufficient sustenance for all on earth [Al-Quran: 38:44]. In addition, Allah says that he created resources including food available in sufficient measured quantities [Al-Quran: 31:20, 14:21, 17:20, and 3:27].

Breast feeding in Quran

Totally, eight verses (Ayahs) of seven chapters (Suras) of the Quran are related to the mother's milk (28). Breast feeding has been proven to be extremely important to the infant's in terms of body growth, intellectual development and enhancement of psychosocial bonding (29). Breast feeding has a religious basis in Islam and it is recommended that the mother suckle her offspring for 2 years if possible and states that every newborn infant has the right to be breastfed (8), [Al-Quran: 2:233]. Weaning from the breast before that period is allowed if mutually decided on by both parents (30).

As per verse [Al-Quran: 46:15] of Quran, the nutrition starts from the fetus' intrauterine environment, in which nourishment occurs by maternal blood through the placenta, and the extra-uterine environment, in which infant feeding occurs by breast milk. Thus, after birth the neonate remains attached to and dependent on the mother for nourishment for 24 months. This period is matching to the scientific of recommending the children up to 2 years (31). The Hadith mentions that the mother receives the reward of a good deed for every drop of breast milk she feeds her child (32).

Wet Nursing

The Prophet Mohammad himself was said to have been wet nursed in this manner for at least

2 years (32). If the mother is unable to breast feed, she and the father can mutually agree to let a wet nurse feed the child [Al-Quran: 2:233]. This demonstrates the preference of Islam in feeding the infant human milk instead of animal milk. The choice of a wet nurse is considered to be a key to the health of babies who cannot be breastfed by their biologic mothers. The Prophet Mohammad instructs Muslims to protect their children from drinking the milk of "adulteresses and the insane," and considers their milk "infectious." Perhaps the potential of human milk in infectious disease transmission was recognized long before modern-day research and virology. Children who have been regularly breastfed by the same woman are considered siblings and hence are prohibited from marrying each other [Al-Quran: 4:23]. This may be a significant issue when establishing donor human milk programs in Muslim communities. Muslim women who donate breast milk have a responsibility to know the identity of the baby who will be fed their milk (33).

Father's Role in Feeding Children

The infant's father has an obligation to support his wife through any circumstances that may affect breastfeeding and, in case of divorce, provide shelter and financial support to the mother–infant dyad for as long as breastfeeding continues [Al-Quran: 2:233, and 65:6]. If breast feeding needs to be discontinued before 24 months, the mother and father need to mutually support this decision. In case the mother and father mutually consent to let a wet nurse feed the child, the father is obligated to financially support and treat the wet nurse well to ensure his child's good nutrition [Al-Quran, 2:233]. Hence, Islam places equal responsibility for the success of breast feeding on both parents. In case of the father's death, the person who replaces him as the child's guardian is responsible for fulfilling this responsibility (8, 33).

Obesity/Food Waste in Quran

There is no place in Islam for wasting any natural resource or being extravagant, and Muslims should not act as niggards or be niggardly. Muslims should also use resources including food without extremes, in balance, and in measured quantities [Al-Quran: 24:67, 20:81, and 6:141]. Muslims have to respect Allah's bounties and graces given to them, to know their limits, power and authorities, and to store and reserve food for hard times [Al-Quran: 10:24, and 14:21]. Although Allah allow provisions (of food) in due measure and quantity [Al-Quran: 42:27] in seeking sustenance and subsistence, Muslims should stay within the limits of their needs, using resources in specific quantities and without over-spending or use [Al-Quran: 2:143, 24:64, 7:31, 47:24, 44:9, and 17:27]. These provisions sometimes include elements such as fear and hunger, or some loss in goods, lives or fruit. In such cases, Allah asks Muslims to remain patient and try to do good deeds [Al-Quran: 2:144].

Few Problems for Being as a Muslim Woman from Nutritional Perspective

Nutritional Problems in Muslim Countries

Muslim societies have different culture and religious practices and traditional knowledge which affect food and nutrition security by shaping a community's diet, food preferences, intra-household food distribution patterns, child feeding practices, food processing and preparation techniques, health and sanitation practices, traditional medicine and the accessibility and use of biomedical public health services. The food and nutrition security impact of culture, religion and traditional knowledge is inherently localized. Certain beliefs and practices may be harmful for one community and beneficial for another, depending on the specific diet and the social, economic and ecological environment (e.g. labor division, local food availability, wearing hijab). Literature indicates that culture, religion and traditional knowledge deserve a more prominent place in food and nutrition security research and policy making. So in general, one of the main challenges in improving global food and nutrition security is understanding its drivers that in Muslim community we identified few in the above text. Malnutrition is a global problem affecting all countries and all people. Particularly, malnutrition in infants, leading to high infant mortality, is caused by poverty, inadequate hygienic conditions, poor maternal nutrition and lack of understanding of proper weaning diet on the part of mothers (33).

Vitamin D Deficiency

Muslim women who wear veils may have low

vitamin D levels. They and their infants may consequently be at risk for vitamin D deficiency, especially when exclusively breastfed past 6 months of age (34). However, Allah has taken oath of the Sun, the morning the evening and the brightest part of the day when the Sun is full strength (35). This can be interpreted that those are the best times to take sun for improving our vitamin D update.

Fasting During Ramadan for Pregnant Women

The lunar month of Ramadan is a time of bodily and spiritual purification for Muslims, in which abstinence from food, drink, and other bodily pleasures from dawn to sunset are practiced. If a pregnant or nursing woman has concerns about harming herself or her infant by fasting, it is permissible for her to delay fasting to another time. Even so, breast feeding during Ramadan is common (34, 36). Though, it is permissible to not fast for pregnant women, but still due to cultural and conservatism, some will continue which can affect the health and growth of the fetus.

Solution to Overcome the Problems (Recommendations)

The above issues discussed under title 4, increases the risk of morbidity, mortality and stunting from malnutrition in children and increased prevalence of malnutrition in pregnant and lactating women. It also decreases infant and young child feeding practices, such as proper breast feeding and weaning. Therefore, in order to increase knowledge and skills of health workers and community health volunteers in the prevention, detection, and management of malnutrition and also to increase community awareness of prevention and management of malnutrition at the household level. There is need to address the following areas that can potentially help reduce the problems in relation to nutrition in the target Muslim communities.

(i) Finding the influential figure in the community or key informant can help. In most Muslim developing countries and communities, Mullah/Imam or the religious leaders play critical role. Imams to be included as influential in changing the behaviors of community for improved nutrition status and messaging. The authors believe that if the Imams, who lead the community, take an active role and really transfer the words of Allah to the people, there is a great potential that the people will change their behavior. For example, if the messages are focused on breastfeeding, eating clean, eating diverse and avoiding eating more, people will obey. This will bring a tremendous change in the communities. (ii) Policy makers need to accept and adapt the divine

words in the policies. It means that the policies should think of Quran sensitive nutrition and addition of extra budget for this as a component of nutrition programs. As part of the community nutrition, this will help the local people to obey the words of Allah while at the same time the nutrition development agenda will also be progressed.

(iii) An important aspect in breastfeeding in Muslim cultures is the mother's emphasis on privacy and modesty when breast feeding. This emphasis stems from the Islamic belief that there are parts of the body of men and women that must be covered at all times in front of those who are not close family members. These concerns may prompt the Muslim woman to formula-feed or bottle-feed expressed breast milk to her infant in the hospital, instead of direct breast feeding, especially in neonatal intensive care unit settings, in which the mother may not have a private room to breast feed. Providing screens and/or covering blankets to facilitate and encourage breastfeeding in a culturally sensitive manner may help Muslim mothers in breastfeeding initiation and continuation.

(iv) Supplementation of vitamin D for those infants whose mothers observe Islamic covering. However, the extent of this increased risk may vary depending on the amount of time the mother or infant is exposed to sunlight. (v) Separation of cultural practices from Islamic/religious practices. This will further help people to distinguish between bad and the good practices in terms of nutrition. (vi) There are beneficial and health-promoting potential of the Holy Quran. Therefore, nutrition professionals could use the food-oriented text and passages to appropriately inform dietary advice to members of Muslim communities (5).

The same authors emphasized that Quran could serve as a significant influential source for culturally competent dietitians, and health professionals serving in Muslim populations for improving and maintaining dietary patterns and features (37). The authors assume that if in addition to taking into consideration of the technical aspects of nutrition, the consideration of above points in the programs design, will contribute to the improved status of nutrition problems in the Muslim communities.

Conclusion

Nutritional problems are becoming a major concern worldwide. It can be seen from the present study that Islam has its own approach towards nutrition based on social and economic justice. Thinking and reflecting on Quranic verses is a kind of guide for Muslim in all aspects of life including nutrition and food security issues. The Quran encouraged

breast feeding, eating quality food and eating in a balanced amount. Excessive consumption and waste is prohibited. Human beings have equal rights in using sufficient pure and lawful foods. Food is an important part of religious symbols, customs, and rituals because food is used to communicate with God, to demonstrate faith through acceptance of divine directives concerning diet, and to develop discipline through fasting. Therefore, in Muslim communities, men, women and children are affected in different ways from a nutrition point of view. As a result, there is need to consider those points in the programming of nutrition activities for Muslim communities so that the nutrition related problems can be solved easily without major investment. Finally, this study suggests that using Quran and other Islamic scriptures in the nutrition programming could serve as a significant influential source in Muslim populations for improving and maintaining dietary patterns. Its usage has a potential to promote dietary patterns rich in fruits, vegetables, and whole grains.

Acknowledgement

The authors are thanking Dr. Sayed Jamaluddin Sediqi for his advices and information on breastfeeding. The authors also would like to thank Ms. Makai Khalid for providing information on the references in Quran for food, fasting, breastfeeding and wet nursing.

Conflict of Interest

The authors received no financial support for the review, authorship, and/or publication of this article from funding agencies in the public, commercial, or not-for-profit sectors. The authors declared no potential conflict of interest with respect to the research, authorship, and/or publication of this article.

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