Food and Nutrition: Links and gaps between tradition and evidence based science

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Abstract
Food affects human life, culture, and economy. Food leads to three branches of evidence based science including food science (preparation, preservation, safety and quality), nutrition (efficacy of foods in promoting human health) and dietetics (optimum management of nutrition). Inappropriate food habit and unbalanced lifestyle are the main reasons of many common diseases all over the world. In the developing countries, shortage of foods causes hunger, whereas in the developed and rich world improper eating is the problem. Traditional and/or religious guidelines could play a role in both situations. For example, recently researchers in the evidence based science field identified significant benefits of the Mediterranean diets in human health. Motivation is one of the keys in changing people to a healthy food habit and this is a challenge for the nutritionists and dietitians. Religious and cultural intervention could play a significant role in motivating people for healthy eating. Most of the religions and/or traditions provide broad guidelines on foods and eating. The first part of this paper will provide summary of the links between evidence based nutritional sciences and religious belief, and how to apply religious intervention for motivating a person for a healthy diet. The religious guidelines are more generic and/or broad and they do not provide detailed options for all possible scenarios. It is evident that for more details we need to use available guidelines generated in the evidence based science while keeping intact the overall religious philosophy or moral. The second part of this paper will attempt to justify why we need to link evidence based science with religion and/or culture. All these analyses in this paper are conducted based on the Islamic perspective.

Abstrak:

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**INTRODUCTION**

Heart disease and stroke (cardiac), diabetlic, and cancer are the major non-communicable diseases around the world. Around 17.1 million people die every year from heart diseases and stroke. At least 80% of premature deaths are preventable through healthy diet, regular physical activity and avoid tobacco (World Heart Federation, 2010). The use of complementary and alternative medicine (CAM) appears to be widespread, and its use has steadily increased over the last two decades in both America and Europe (Ernst and White, 2000). CAM is usually described as diagnosis, treatment and/or prevention, which complements mainstream medicine by contributing to a common whole by satisfying the conceptual frameworks of medicine (Ernst and Cassileth, 1998). Scott et al. (2005) conducted a survey on the use of CAM in patients with cancer. They identified the use of relaxation, meditation and medicinal teas were the most frequently used therapies. The reasons to use CAM are: (i) to improve their physical well being, (ii) to improve emotional well being, and (iii) to try every things to fight the diseases by managing the care in order to overcome the diseases process. The reviews on the CAM are available in the literature (Barrocas, 1997; Ernst, 2003; Ernst, 2007; Kemper and Shannon, 2007).

Religion plays an important role in many people's lives for their health, life-style, society, administration, business, and marketing. Lee and Newberg (2005) reviewed the knowledge regarding religion and health relation with a critical assessment of the issues pertaining to methodology, findings, and interpretation of the results. He mentioned that there is evidence that something about religion can provide health benefits. Religion brings many things including social and emotional support, motivation, and health-care resources, and it promotes healthy lifestyle. The efforts in raising awareness thorough religious intervention could also be beneficial. In a Christian population in the USA, Kim et al. (2008) identified significant relationships between religion, food-related behaviors, nutrition, and body anthropometrics in women, but not in men. Women are generally more religious than men and play a larger role in church with food acquisition, preparation and distribution. A Judaism and Christianity intervention model was proposed by Anshel (2010), which can be used by religious leaders for changing health behavior among practicing members of religious communities. It acknowledged misaligned or disconnected negative habits (e.g. lack of exercise, poor nutrition) and beliefs (e.g. faith, health, family). Bulow et al. (2008) reviewed the world's major religions' points of view on the end-of-life decisions in the intensive care unit in order to improve physicians' knowledge, in order to provide better services. Levine et al. (2010) discussed the four tenses of theory (mechanisms, models, mid-range theories and grand theories) in religion, aging and health. Gillum et al. (2009) observed that a protective effect of early-life religiousness on the smokeless tobacco, it is important to take this into account in planning smoking prevention efforts. In the case of Catholics, Evangelicals and Spiritualists, van der Meer Sanchez and Nappo (2008) observed the abstinence from drugs was more than just religious faith. Other factors included the support, positive pressure and welcoming offered by the group, and the offer to rebuild their lives with the unconditional support of religious leaders. In many instances, confessions and pardons, in the form of faith conversions and
penitence helped to rebuild peoples’ lives and restore their self-esteem. Lee and Newberg (2005) provided future directions of the research related to religion and health as: (i) accompanying and confounding factors need to be isolated to determine their relative roles, (ii) further clinical studies need to be conducted for exploring physiological process, (iii) many diseases need to be included in the framework, and (iv) the effects of different religious groups and sects including demographic parameters (such as age, sex, and geographical location) need to be include. He concluded "The study of religion and health as well as the integration of religion into health care is likely to continue growing, and new ways of researching this discipline may emerge. Unless the relationship between religion and health care cycles back to antagonism, many exciting new findings may appear". Islamic models or perspective are also proposed and explained in the cases of anger and dejection (Athar, 2010b), in conflict management to be used by project managers (Randeree and Faramawy, 2010), in diseases and its healing effects (Rahman et al. 2008). Athar (2010b) explained clearly the Islamic perspective in regards to anger and dejection, which could be successfully and effectively applied in Muslims’ lives.

Emotions act as a driving force behind consumer decisions and urge for action (Bagozzi et al. 1999; 2000). Rational by itself does not motivate a consumer to make a decision. It was identified that people make decisions in response to anticipated emotions. These emotions resulted in making decision through motivation to consume. The positive emotional consequences caused to consume if the decision leads to feeling of joy and pride. The negative consequences leading to emotions, such as worry and distress, stimulate a decision reluctant to consume. Colchamiro et al. (2010) provided a method, "Touching Hearts, Touching Minds", using emotion based messages to promote nutritional education to women, infants and children. They developed 30 nutrition educational materials and facilitated group counseling techniques using the power of emotional "pulse points" or "emotional drivers" to influence practice of positive eating, parenting and physical activity leading to healthier families. The pulse points are the fundamental emotional impulses or hot buttons that cause individual to act and are critical influencers in decisions related to behavior change. The emotion based prototype materials made the participants "think on their own", even after putting down the material, they kept thinking through the subject or topic. The pulse points that emerged through the analysis of responses included pride, hope for future success, and a desire to create happiness within a family. They provided an example of an emotion-based material versus the traditional nutritional education material motivating for breast feedings. The traditional material contained photograph of a pregnant women with captions "Thinking about breast feedings?" and "Answers to common breast feeding questions", while emotion based material contained a photograph of a baby with university graduating hat with caption "kids who take the full year breast feeding program graduate smart". Thus touching the emotion-pulses of pride, hope for future success, and a desire to create happiness within a family is the key of motivating. The Medicinal Wheel Nutrition (Indian culturally based dietary guide) intervention was used to educate focused group as compared to usual care group having normal dietary education (Kattelmann et al. 2010). It was observed that culturally based nutrition intervention promoted significant weight loss and decreased BMI as compared to the control group. The authors suggested greater frequency and longer duration of educational support may be needed to influence blood glucose and lipid parameters of the group.

Food rules as they appear in the Qur’an are contained within the concepts of halal and haram. Halal means lawful, permitted and recommended by the Islamic law. Haram is the opposite meaning unlawful and prohibited (Kocturk, 2002). The Islamic law is derived from four sources: the Qur’an, Hadith, Ijma (the consensus of Islamic scholars) and Qiyas (a reasoning which uses analogies from the Qur’an to govern actions not covered directly by the book, for example a ban on narcotics based on the prohibition of alcohol, as documented in the Qur’an) (Otterman, 2005; cited by AlMarri et al. 2009). The details of lawful and unlawful foods in Islam are discussed in the other
published literature (Kocturk, 2002; Nurdeng, 2009; Eliasi and Dwyer, 2002) and its impacts in market (Fischer, 2008). The current paper is focused on the Islamic religious intervention for motivating a person for healthy diet. Motivation is the key for having good diet-habit and touching the pulse of a Muslim by Islamic guidelines would be a powerful tool for achieving good dietary habits in the Muslim society.

**EVIDENCE BASED SCIENCE, TRADITION AND RELIGION**

In the dictionary science is explained as “knowledge based on observed facts and tested truths arranged in an orderly system or the search for truth” (The World Book). Sarder (2006) provides a more precise definition as “Science is an organized, systematic and disciplined mode of inquiry based on experimentation and empiricism that produces repeatable and applicable results universally, across all cultures”. Belief is considered as the acceptance of true or real. Faith is based on physically unseen as defined by a system of religion. However, it relies with the feeling over sensation. Tradition is the handing down of beliefs, opinions, customs, and stories from parents to children especially by word of mouth or by practice. Science needs measurable and observable dimensions. In the evidence based science experiments are performed by setting up conditions with factors (i.e. variable) causing a process or result (i.e. prediction). An experiment needs to reproduce itself in order to be considered both valid and significant. In the physical science the factors can be manipulated and controlled easily. This physical science usually does not consider the effects of actors (who is making the actions) or subjects (on whom the experiments are being performed). When we are dealing the effects of actors and subjects, it is a challenge to establish proper testing conditions which could guarantee a high level of accuracy and completely unbiased results. However, social and consumer sciences, the subjectivity is included, which makes more complicated in making universal result. In this case statistical tools play a significant role in performing their experiments, interpretation and explanation of the results. The first thing in the evidence based science needs data, which is a set of facts (i.e. cases in a dataset). Pattern is fitting a model to data, finding structure from data, or in general any high-level description of a set of data. A pattern can be considered as knowledge if it exceeds some interesting threshold (Fayyad and Stolorz, 1997). Laws transform into universal when its validity goes much wider domain. Science could handle much better the cause and effect of a process or system, but more weak in explaining why an incidence happen and what causes (i.e. force behind) it to happen.

Guessoum (2010) discussed different philosophical aspects of science and religion, and how the Islamic perspective could be forwarded. He identified that the modern science has adopted “methodological naturalism” as a basis of its pursuit of knowledge, removing any divine or supernatural element from its considerations”, which many religious people find unacceptable. This approach is the cause of unbridgeable chasm between the two domains. He explained the philosophy of knowledge (i.e. science) in Islam and explained as: science describes nature, whereas religion gives us not only philosophy of existence but also an interpretative cloak for the discoveries of science and for the meaning of the cosmos and nature. Guessoum (2010) also identified many of the verses of Qur’an and hadiths in order to realize how Islam puts strong value and emphasis on the quest for knowledge or “ilm”. Golshami (2002) expressed his view as “We believe that the spectrum of knowledge recommended by Islam is very wide. It includes both specifically religious teachings and those branches of knowledge that are beneficial to the welfare of individuals and human societies”. He mentioned that ilm (knowledge) and its derivatives are used more than 780 times and contrary to what many religious scholars have proclaimed, ilm as described in the Qur’an is much wider than and it is not limited to the religious fields that may be more obligatory upon Muslims to know about. At present most of the Islamic scholars accept this concept as compared to earlier time. Golshani (2002) concludes “The Qur’an used the term ilm for both the natural sciences and the
human/social sciences; it strongly encouraged the study of natural phenomena, but this was not intended for its own sake, but rather as part of a general objective of finding Allāh’s fingerprints in the cosmos, filling the earth, and benefiting from its bounties”. Al-Biruni (973-1048) explicitly stated that the motive behind his research in the scientific fields is Allāh’s Words in the Qur’ān

“Men who celebrate the praises of Allah, standing, sitting, and lying down on their sides, and contemplate the (wonders of) creation in the heavens and the earth, (With the thought): “Our Lord! not for naught Hast Thou created (all) this! Glory to Thee! Give us salvation from the penalty of the Fire”

(The Qur’ān 3:191)

In summary we can conclude that gaining knowledge is important in Islam as long as it is for experiencing the creator of the universe, and beneficial for ourselves or others. The religious guidelines are more generic and/or broad and they do not provide detailed options for all possible scenarios. It is evident that for more details we need to use available guidelines generated in the evidence based science while keeping intact the overall religious philosophy or moral. Although science and religion are fundamentally different conceptual systems, it is utmost importance to understand their differences, their domains of overlap, and possible ways in which they can and must interact. A fruitful exchange and mutual enrichment is possible at the "metaphysical" level, as different general philosophical frameworks can be adopted for science, ranging from the materialistic to the theistic (Guessoum, 2010). The science and religion can avoid conflict and be positive engines in the welfare of human if science can accept to give up its imperialistic dreams and if religion can accept to be less "dogmatic" and more open to contributions from other fields of knowledge (science, art etc) (Dyson, 2007). Lots of works have been published to identify beneficial effects of following religious guidelines in improving health and social order.

ACTION IS NECESSARY FOR OUR HEALTH

Human life contains body, brain, and mind (spirit or soul), which is a gift from Allāh and we are trustees. Islamic ways require caring of all these three components. The belief in Allah is the first and foremost important need for spiritual stability.

Allah makes the natural laws and the whole universe follows the rules. Evidence based scientists explore the extremely complex rules or laws of nature in a most simplified ways. The experimental tools and complex statistical techniques help them in exploring the rules. That’s why the hypothesis, results, and theory are continually changing over time with expansion of experimental tools and improved methodologies. Science accepts continual progress and understanding as times goes on. The divine laws from religious could be considered ultimate universal since it came from the creator (i.e., Allāh) of the universe. He could change or hold the laws as we say a miracle.

The dietary guidelines are the cornerstone for developing nutrition policy and nutrition education. The Dietary Guidelines for Americans are jointly issued and updated every 5 years by the Department of Agriculture (USDA) and Health and Human Services (HHS) since 1980 (USDA, 2010). This update is mainly needed to incorporate new knowledge generated through evidence based science. The evidence based scientific results are now being available in the scientific literature related to different religious activities. For example, Zerguini et al. (2008) presented scientific data on the effect of fasting on the mental and physical performance of football players. They observed that the biochemical, nutritional, subjective well-being and performance variables were not adversely affected in young male football players who followed Ramadan fasting in controlled training camp environment. Physical performance generally improved, but match performance was not measured. They recommend that players should ensure to have adequate sleep and good nutrition during Ramadan in order to preserve football performance and general health. Another study by Meckel et al. (2008) identified that fasting during the Ramadan month causes a decrease in the physical work capacity of adolescent soccer players. This decrease is noted especially in activities that are supported by the aerobic energy system.
“Whatever good, (O man!) happens to thee, is from Allah, but whatever evil happens to thee, is from thy (own) soul. and We have sent thee as an apostle to (instruct) mankind. And enough is Allah for a witness”
(The Qur’an 4:79).

We should not misuse it, nor provide wrong raw products for the factory and we should keep superb maintenance of this delicate and sensitive machine, in order to enjoy it. It is the container of our soul (Athar, 2010a).

“Verily never will Allah change the condition of a people until they change it themselves (with their own souls)”
(The Qur’an 13:11)

“Whatever misfortune happens to you, is because on the things your hands have wrought, and for many (of them) He grants forgiveness.”
(The Qur’an 42:30)

“Allah created the heavens and the earth for just ends, and in order that each soul may find the recompense of what it has earned, and none of them be wronged.”
(The Qur’an 45:22)

“Every soul will be (held) in pledge for its deeds.”
(The Qur’an 74:38)

In Islam it advised to take medicine, justifying action is necessary for health. Usamah Bin Shareek (may Allah be pleased with him) reports "I was with the prophet and some Arabs came to him asking ‘O messenger of Allah, do we take medicine for any disease’. He said, 'Yes O you servants of Allah take medicine as Allah has not created a disease without creating a cure except for one. They asked which one, he replied old age".

Islam places great importance on the well-being of the society. Improper eating is a great threat to any society. We should take care our health, as well our family members, neighbors, and society. We have some responsibility also to motivate others towards healthy lifestyle. The Prophet Mohamed (saw) said

“The believers in their love, mercy, and kindness to one another are like a body: if any part of it is ill, the whole body shares its sleeplessness and fever”
(Muslim, Hadith no. 2586)

The Prophet said

“The world is green and beautiful and Allah has appointed you as His stewards over it. He sees how you acquit yourselves”

(Sunan al-Termidhiyi, hadith no. 2191)

In many instances we feel that it may be too late to take action for any required benefits. It is never late to take actions. Prophet Muhammad (peace be upon him) said "If the last hour comes and in your hand you have a seedling, then if you are able to plant it before that, then do so".

OVER EATING AND OBESITY

Obesity is a tragedy of modern life. Allah advises as to be moderate in quantity. Waste can be considered as no uses or benefits. Over eating could be considered as waste. Many of the common illnesses, such as coronary heart disease, hypertension, diabetes, peptic ulcer, obesity and depression, are mainly man-made etiology with consuming rich food, too much food, too much salt, too much sugar, smoking, stress and alcoholism. If we give up excessive salt, sugar and cholesterol from our diet, and do not drink and smoke, and stay active, it would be possible to keep the pump (i.e. heart) and its pipes (i.e. arteries) from rusting inside (Athar, 2010a).

The Qur’an tells us

“But squander not (your wealth) in the manner of a spendthrift. Verily spendthrifts are brothers of the Evil Ones; and the Evil One is to his Lord (himself) ungrateful”
(The Qur’an 17:26-27)

“O Children of Adam! wear your beautiful apparel at every time and place of prayer: eat and drink: But waste not by excess, for Allah loveth not the wasters”
(The Qur’an 7:31)

“Then (on the Day of Judgment) you will certainly be questioned about all the favors you enjoyed”
(The Qur’an 102:8)

“It is He Who hath made you (His) agents, inheritors of the earth: He hath raised you in ranks, some above others: that He may try you in the gifts He hath given you: for thy Lord is quick in punishment: yet He is indeed oft-forgiving, Most Merciful”
(The Qur’an 6:165)
The Prophet Mohammad (PBUH) said:

“Eat and drink, give charity and wear good cloths as long as these do not involve excess or arrogance.”

(Sunan Ibn Majah, Hadith no. 3605)

"Excess in the use of water is forbidden, even if you have the resources of a whole river.”

(Sunan al-Termidhiyi)

One of the Kings of Persia sent to Muhammad (PBUH) a learned physician. The physician remained in Arabia for one or two years but no one approached him or sought his treatment. At last he presented himself before the Prophet and complained: "I have been sent to treat your companions but during all this time, no one has asked me to carry out my duties in any respect whatsoever". The Prophet (PBUH) replied to him: "It is the custom of these people not to eat until hunger overcomes them and to ceases eating while there still remains a desire for food". The physician answered:"This is the reason for their perfect health" (Elgood, 1951).

He also advised us to eat in such a way that we are left with one-third food, one-third water and one-third air in our stomachs (Ahmad, Tirmidhi, Nasai, Ibn Majah). We should eat less, but eat well. Invest in good food that is healthy (Sound Vision, 2010).

The Prophet Muhammad (PBUH) said that two persons’ food in enough for three, and three persons’ food is enough for four (Bukhari, Muslim).

PROPER EATING

“Then let man look at his food, (and how We provide it)”

(The Qur’an 80: 24)

Allah loves His creations so much that He is concerned even with what we eat and put in our body. In the following verses it is clear.

“O ye people! Eat of what is on earth, Lawful and good; and do not follow the footsteps of the evil one, for he is to you an avowed enemy”

(The Qur’an 2:168)

Certain types of food (i.e. fruits) are especially emphasized in the Qur’an.

"(Every) fruit (enjoyment) will be there for them; they shall have whatever they call for”

(The Qur’an 36:57)

“(Saying): “Eat of the good things We have provided for your sustenance, but commit no excess therein, lest My Wrath should justly descend on you: and those on whom descends My Wrath do perish indeed!”

(The Qur’an 20:81)

Our body components (muscles, bones, lungs, liver, brain and secretions) are made from the raw product we feed it. If we provide the factory with junk raw products, the factory will not produce tough bones, strong muscles, good pump (heart) and clean pipes (vessels) (Athar, 2010a).

These verses also justify that foods which can harm is not allowed to eat. For example, if we have diabetics then it is important to consume high sugar foods within the limits.

The Prophet (PBUH) allowed us to eat meat and, like all other foods, meat is one of Allah’s favors that He permits us to enjoy. However, we need to apply the principle of moderation, a key aspect of the Prophet’s lifestyle, in our diet. Eating more vegetables, without abandoning meat, can make a significant difference in the amount of natural resources each of us consumes (Toorawa, 2010).

TESTS FOR MUSLIMS

There may be question why all actions we take are unable to bring same result. Every one of us get sick some times in our life time even often following good practice. The Islamic tradition teaches us to take sickness as positive. In illness, according to Imam Ghazali, the awareness of Allâh increases and man becomes closer to Allâh by realizing his own weakness.

Qur’an has healing effects on our body, mind and heart. These healing effects are due to the effect of sound (echo) and the results of following guidelines by understanding the meaning. The letter Alif resounds unto the echos to heart and the letter YA resounds unto echos to the pineal gland in the brain (Athar, 2010a). These following verses are the evidence

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“O mankind! there hath come to you a direction from your Lord and a healing for the (diseases) in your hearts, and for those who believe, a guidance and a Mercy”

(The Qur’an 10:57)

“We send down (stage by stage) in the Qur’an that which is a healing and a mercy to those who believe: to the unjust it causes nothing but loss after loss.”

(The Qur’an 17:82)

The Prophet  asked Abu Hurayrah "Does your stomach ache? He said: 'Yes O Messenger of Allah'. The Prophet  said: 'So stand up and pray, as there is healing in prayer"

In Islamic view point illness and diseases are also will of Allāh as kaffara for our sin, Muslim should ask him to remove the affliction.

“If Allah touch thee with affliction, none can remove it but He; if He touch thee with happiness, He hath power over all things”

(The Qur’an 6:17)

“And when I am ill, it is He Who cures me”

(The Qur’an 26:80)

This indicates that the ultimate cure comes only after His approval. The Prophet emphasized that the best supplication is to seek good health.

“Mischief has appeared on land and sea because of (the meed) that the hands of men have earned, that ((Allah)) may give them a taste of some of their deeds: in order that they may turn back (from Evil)”

(The Qur’an 30:41)

“And We shall try you until We test those among you who strive their utmost and persevere in patience; and We shall try your reported (mettle)”

(The Qur’an 47:31)

“All soul shall have a taste of death: and We test you by evil and by good by way of trial: to Us must ye return”

(The Qur’an 21:35)

Certain failures and adversity have been designed to teach us certain lessons. Caliph Ali once said: "what makes me a believer in Allāh is the fact that I realize that after doing everything humbly possible to make certain things go right, it goes wrong unexpectedly, making me believe that someone else was in control of that situation, not me'. Athar (2010b) mentioned

"The remedy for dejection is hope. Allāh made hopelessness unlawful by saying, 'Do not despair of Allāh’s mercy.' Thus, no matter at what level of despair, depression and frustration we are, whether loss of a loved one or a job, or as the results of anger from someone else, we must not give up hope as there is a ray of hope at the end of the tunnel. The greatest hope is mercy from Allāh”.

Muslims believe that all our suffering, failures and adversities are nothing but a test from Allāh, who has said that "You will not enter Paradise until you are tested". He has also said

"Be sure we shall test you with something of fear and hunger, some loss in goods or lives or the fruits (of your toil), but give glad tidings to those who patiently persevere”

(The Qur’an 2:155)

For cure efforts need to be done and then to rely on Allah for ultimate results. This way efforts and believe (iman, first and most important criterion for believe) are linked in the Islamic perspectives. The evidence based science only relies on the efforts and then expect results within some confidence levels or probability. Allah has made natural law or how every things in the universe should behave, and He could change it any time, just instance.

CONCLUSION

Religion affects many peoples’ lives in different ways. Inappropriate food habits and unbalanced lifestyle are the main reasons of many common diseases. Traditional and/or religious guidelines could play a significant role in moderate and proper eating. Islamic guidelines could definitely motivate Muslims for proper eating and good life style for good health. This paper also explains the Islamic view point of illness and diseases even after taking all possible cares. This is mainly due to the test of iman or patience and compensation for some of our sin, making us positive towards sickness and searching for possible biomedical efforts and ultimate cure through Allah’s mercy.

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