



## Religious Fasting; the Purgation of Soul and Body

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ARTICLE INFO	ABSTRACT
<p><i>Article type:</i> Review Article</p>	<p><b>Introduction:</b> Nearly one billion adult Muslims across the world refrain from eating, drinking, and smoking from dawn until dusk during the holy month of Ramadan. The duration of Islamic fasting varies depending on the coinciding season and geographical location. The present study aimed to review the health benefits of Islamic fasting.</p>
<p><i>Article History:</i> Received: 09 Jun 2019 Accepted: 03 Jul 2019 Published: 1 Jan 2020</p>	<p><b>Methods:</b> This review was carried out after searching in several databases such as Science Direct, PubMed, Medline, PMC, Google Scholar and also the related articles.</p>
<p><i>Keywords:</i> Religious fasting Ramadan Health Soul Body</p>	<p><b>Results:</b> Islamic fasting is along with many health benefits such as the reduced risk of diabetes, cardiovascular diseases, hypertension and cancer. Although, some health problems have mentioned during Islamic fasting like dehydration, headaches.</p>
	<p><b>Conclusion:</b> According to the results of this review, religious fasting positively influences the body weight and lipid and glucose levels, while exerting antioxidative effects, increasing longevity, and improving the renal and immune function. The health benefits of fasting could be reinforced through the balanced intake of various nutrients, such as dairy products, fruits and vegetables, meat and fish, cereals, and grains, as well as beverages such as water and milk, during Ramadan.</p>

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### Introduction

There are several types of fasting that are followed for the promotion of health and religious reasons across the world. Fasting is defined as restraint from the consumption of food and drink for variable durations of time, which is associated with increased longevity and has potential advantages for human health (1). Fasting is a dietary behavior that is performed mainly as a health-promoting pattern (2). Religious fasting involves the avoidance of consuming food and drink as a religious duty at various times of year in different regions of the world (1).

According to Islam, fasting protects believers against sins and passionate desires. Muslims practice fasting by refraining from eating, drinking, and smoking from Sahur (before sunrise) until Iftar (after sunset) during the holy month of Ramadan for 28-30 days (3). One of the primary aims of religious fasting is the purification of the human soul and body simultaneously (1). Furthermore, this restraint dietary pattern could help individuals attain high spiritual piety (4). Islamic fasting is an effective

approach to health development and is associated with numerous health benefits, including the reduction of hypertension (5), improvement of insulin sensitivity (6), weight loss (7, 8), elevation of endorphin levels (9), improvement of asthma (10), immune cell regeneration (11), reduction of inflammation (12), detoxification (13), and improvement of rheumatoid arthritis (14).

It is notable that Islamic fasting may cause some health discomforts, such as dehydration, headaches, constipation, sleep deprivation, and poor sleep quality (15). Therefore, it is essential for fasting individuals to adhere to a balanced diet in order to eliminate the adverse effects of fasting. It is advisable that such diets contain dairy products, fruits and vegetables, meat and fish, cereals, and grains. Additionally, fasting individuals must consume adequate beverages, such as water, milk, juices at Iftar and Sahur (3, 15). Fasting Muslims are highly recommended to avoid fatty, sweet, and salty foods, as well as carbonated and caffeinated drinks (3). Islamic fasting is mostly considered safe for those who are obligated to perform this religious duty (16).

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The present study aimed to review the potential protective effects of religious fasting on human health.

### **Material and methods**

This review study was conducted via searching in databases such as ScienceDirect, Medline, PubMed, PMC, and Google Scholar for relevant articles using keywords such as religious fasting, health benefits, Islamic fasting, and Ramadan. The articles focused on the health benefits of Ramadan fasting on individuals and its effects on the body weight, lipid and glucose levels, antioxidative activities, longevity, and renal and immune functions were selected and reviewed.

### **Results and Discussion**

This review study aimed to discuss the impact of religious fasting on the health of fasting individuals. Religious fasting simultaneously affects the soul and body of humans.

#### ***Effects of Religious Fasting on the Human Body***

##### ***-Reduction of Body Weight and Body Mass Index (BMI)***

In most of the retrieved studies, a significant trend was reported in weight loss in Ramadan fasting, while the reduction of body weight was more significant in men compared to women (17, 18). Islamic fasting may result in weight loss through various mechanisms, such as the reduction of energy intake (19-21), daily energy consumption (22), body fluids (23), and consumption of food and drink at night, which often lower food absorption compared to daytime food intake (24).

According to the current review, the reduction in the body weight of fasting individuals could be influenced by several factors, including age, the initial body mass index (BMI), fasting duration, regional residence, and reduction of the calorie intake (25, 26). Among the other influential factors in this regard are the changes in the frequency and time of eating, physical activities, and sleeping habits during Ramadan (27).

##### ***-Reduction of Lipid and Glucose Levels***

After Ramadan fasting, the levels of total cholesterol, triglyceride, and glucose have been reported to decline (28). Furthermore, the studies in this regard have denoted the significant reduction of low-density lipoprotein (LDL), as well as the significant increase in the level of high-density lipoprotein (HDL) in Islamic

fasting (29-32). These lipid changes would persist for one month after Ramadan (33, 34). On the other hand, Islamic fasting has been observed to enhance lipid profiles through the changes in the time of food intake (31), nutritional behaviors (35), and calorie restriction (17, 36). According to the literature, Islamic fasting could improve insulin sensitivity (37). Fasting is associated with altered sleep patterns, which in turn leads to changes in the levels of energy-regulating factors, such as leptin, melatonin, insulin, cortisol, and testosterone (28).

Moreover, Islamic fasting has been reported to decrease the serum levels of leptin, thereby reducing the leptin/adiponectin ratio and causing insulin resistance (38, 39).

##### ***-Antioxidative Effects of Islamic Fasting***

Ramadan fasting may enhance antioxidative and anti-inflammatory mechanisms (40). The increased levels of pro-inflammatory cytokines may increase the risk of inflammatory diseases (e.g., diabetes), insulin resistance, cardiovascular diseases, and atherosclerosis (41). On the other hand, Islamic fasting has been observed to significantly decrease pro-inflammatory cytokines, including TNF- $\alpha$  and IL-6, which in turn leads to improved inflammatory status of the human body (42). In addition, Ramadan fasting could decrease the levels of other inflammatory markers, such as homocysteine and C-reactive protein (40). Evidence suggests that the level of IL-6 could remain significantly low one month after Ramadan fasting, which is considered to be a long-term health benefit of Ramadan fasting (17).

##### ***-Effects of Fasting on the Renal Function***

According to the literature, Ramadan fasting has no significant adverse effects on the renal function of healthy fasting individuals (43). Furthermore, some studies in this regard have denoted no changes in the serum levels of calcium and phosphorus due to fasting (44). However, slight changes in the levels of urea and creatinine have been reported in fasting individuals although they have not been considered significant in healthy individuals (45). The mentioned increment could be due to dehydration and higher protein intake during Ramadan or the increased protein catabolism, while the serum levels of urea and creatinine have been reported to decrease to the baseline levels at the end of Ramadan (46, 47). The discrepancies in the findings in this regard could

be due to the various types of diets, activity levels, and climates (43). In general, no adverse effects on the renal function have been directly attributed to Ramadan fasting in healthy individuals. However, patients with renal diseases should be supervised by physicians during Ramadan in order to prevent the possible detrimental effects (48).

#### **-Effects of Fasting on the Immune Function**

Recently, extensive research has been focused on the association of nutrition and immune function (49). According to most of the findings in this regard, fasting could have therapeutic effects on some diseases, such as immune system complications and autoimmune disorders (50). T cells play a key role in the destruction of cancerous and infected cells, and evidence suggests no significant difference in T cells after one month of fasting (51). On the other hand, no significant differences have been reported in the count and ratio of B lymphocytes, which are involved in humoral immunity, before and after Ramadan fasting. Therefore, it could be concluded that Ramadan fasting has no effects on the count of B lymphocytes (52). Meanwhile, the innate immunity has been reported to increase in fasting individuals, especially the activity of natural killer cells, which are essential to antiviral and anticancer defense (53). As such, it could be stated that Ramadan fasting has no

adverse effects on the immune function of healthy individuals (43).

#### **-Effects of Fasting on Increased Longevity**

Ageing is often associated with the gradual decline of the function of body organs, as well as the increased risk of various diseases (15). Fasting has been reported to extend the lifespan through exerting anti-ageing effects, as well as eliminating the risk of diabetes, cardiovascular and renal diseases, oxidative damage, and cancer (54-56). Moreover, the shifting of the metabolism from glucose burning to fat burning in the fasting state has been shown to decrease oxidative stress and improve longevity (57). Islamic fasting could also change the levels of hormones; such examples are the increasing of the hormones that suppress inflammation and decreasing of the hormones that regulate cellular metabolism and anabolic hormones, thereby exhibiting causing anti-ageing effects (58). Furthermore, the limited energy intake in fasting individuals has been associated with the extension of longevity through reducing the risk of cognitive dysfunction, atherosclerosis, and metabolic dysfunction (59-61).

Table 1 shows the main health benefits of Islamic fasting regarding the body weight, lipid and glucose levels, anti-oxidative effects, longevity, and effects on renal and immune function.

**Table 1.** Physical Health Benefits of Ramadan Fasting

Health Benefit	Mechanism	Reference
Reduction of Body Weight	Reduction in daily energy consumption through the limited consumption of foods and beverages	22, 24
Lipid Reduction	Decreased LDL level	29, 30
Glucose Reduction	Decreased serum leptin levels	38,39
<b>Antioxidative</b> Effects	Increased pro-inflammatory cytokines	41
Effects on Renal Function	No changes in serum calcium/phosphorus	44
<b>Effects on Immune</b> Function	Increased activity of natural killer cells	53
Increased longevity	Anti-ageing effects and eliminating the risk of diabetes, oxidative damage, and cancer	54-56

#### **-Effects of Religious Fasting on the Human Soul**

Several studies have confirmed that Islamic fasting not only has positive effects on physical health, but it also improves mental health (62). Religious fasting is associated with positive functions, such as the improvement of spiritual wellbeing (63), developing mental health, and decreasing depression (64, 65). Moreover, Islamic fasting has numerous effects on wellbeing and health through eliminating negative sensations such as aggression, greed,

and other abusive behaviors, while reinforcing positive attributes, such as honesty (66).

According to the Holy Quran, fasting relates to piety and has functional effects on mental and physical health (67). Religious fasting also promotes other human virtues, such as honesty, forgiveness, self-discipline, generosity, altruism, patience, and gratefulness (68, 69). These characteristics are essential to being a supreme individual and affect the main aspects of health, including physical, spiritual, social, and

psychological health (70). In Islamic teachings, greed is so illaudable that it darkens the human soul, as well as the other social aspects of human life. Islamic fasting provides a holistic view toward human wellbeing (66, 71).

## Conclusion

Millions of religious believers fast at specific times of year across the world. The health benefits of religious fasting have been reported by Muslims, Christians, and Buddhists. Food and energy restriction are the basal components of religious fasting, which lead to health effects and disease prevention. According to Islamic teachings, human wellbeing and health are incorporated into every dimension of the human life. Fasting is the main aspect of Islamic thoughts that affects the health of humans both physically and spiritually. Some of the main physical health benefits of Islamic fasting include the reduction of body weight and lipid and glucose levels, antioxidative effects, and increased longevity. Moreover, Islamic fasting promotes human virtues, such as patience, hope, honesty, and non-greediness. As these human virtues are momentous for a healthy life, fasting plays a pivotal role in the improvement of various aspects of life.

## References

1. Trepanowski JF, Bloomer RJ. The impact of religious fasting on human health. *Nutr J*. 2010; 9: 57-65.
2. Horne BD, Muhlestein JB, Anderson JL. Health effects of intermittent fasting: hormesis or harm? A systematic review. *Am J Clin Nutr*. 2015; 102(2): 464-70.
3. Pakkir Maideen NM, Jumale A, Balasubramaniam R. Adverse health effects associated with Islamic fasting-A literature review. *J Fasting Health*. 2017; 5(3): 113-8.
4. Lazarou C, Matalas AL. A critical review of current evidence perspectives and research implications of diet-related traditions of the Eastern Christian Orthodox Church on dietary intakes and health consequences. *Int J Food Sci Nutr*. 2010; 61(7): 739-58.
5. Varady KA, Hellerstein MK. Alternate-day fasting and chronic disease prevention: a review of human and animal trials. *Am J Clin Nutr*. 2007; 86(1): 7-13.
6. Lu J, E L, Wang W, Frontera J, Zhu H, Wang WT, et al. Alternate day fasting impacts the brain Insulin-signaling pathway of young adult male C57BL/6 mice. *J Neurochem*. 2011; 117(1): 154 -63.
7. Shehab A, Abdulle A, El Issa A, Al Suwaidi J, Nagelkerke N. Favorable changes in lipid profile: the effects of fasting after Ramadan. *PLoS One*. 2012; 7(10): e47615.
8. Bouhlel E, Denguezli M, Zaouali M, Tabka Z, Shephard RJ. Ramadan fasting's effect on plasma leptin adiponectin concentrations and body composition in trained young men. *Int J Sport Nutr Exerc Metab*. 2008; 18(6): 617-27.
9. Akuchekian S, Ebrahimi A, Alvandian S. Effect of the holy month of Ramadan on coping strategies. *J Res Med Sci*. 2004; 9(2): 65-8.
10. Johnson JB, Summer W, Cutler RG, Martin B, Hyun DH, Dixit VD, et al. Alternate day calorie restriction improves clinical findings and reduces markers of oxidative stress and inflammation in overweight adults with moderate asthma. *Free Radic Biol Med*. 2007; 42(5): 665-74.
11. Cheng CW, Adams GB, Perin L, Wei M, Zhou X, Lam BS, et al. Prolonged fasting reduces IGF-1/PKA to promote hematopoietic-stem-cell-based regeneration and reverse immunosuppression. *Cell Stem Cell*. 2014; 14(6): 810-23.
12. Faris MA, Kacimi S, Al-Kurd RA, Fararjeh MA, Bustanji YK, Mohammad MK, et al. intermittent fasting during Ramadan attenuates proinflammatory cytokines and immune cells in healthy subjects. *Nutr Res*. 2012; 32(12): 947-55.
13. Arumugam TV, Phillips TM, Cheng A, Morrell CH, Mattson MP, Wan R. Age and energy intake interact to modify cell stress pathways and stroke outcome. *Ann Neurol*. 2010; 67(1): 41-52.
14. Hafström I, Ringertz B, Gyllenhammar H, Palmblad J, Harms-Ringdahl M. Effects of fasting on disease activity neutrophil function fatty acid composition and leukotriene biosynthesis in patients with rheumatoid arthritis. *Arthritis Rheum*. 1988; 31(5): 585-92.
15. Pakkir Maideen NM, Jumale A, Alatrash JI, Ahamed Abdul Sukkur A. Health Benefits of Islamic Intermittent Fasting. *J Fasting Health*. 2017; 5(4): 162-71.
16. Sadeghpour S, Hassanzadeh Keshteli A, Daneshpajouhnejad P, Jahangiri P, Adibi P. Ramadan fasting and digestive disorders: SEPAHAN systematic review No. 7. *J Res Med Sci*. 2012; 17(7): 150-8.
17. Persynaki A, Karras S, Pichard C. Unraveling the metabolic health benefits of fasting related to beliefs of religion: A narrative review. *Nutrition*. 2017; 35: 14-20.
18. Heilbronn LK, Smith SR, Martin CK, Anton SD, Ravussin E. Alternate-day fasting in nonobese subjects: effects on body weight, body composition, and energy metabolism. *Am J Clin Nutr*. 2005; 81(1): 69-73.
19. Ziaee V, Razaee M, Ahmadinejad Z, Shaikh H, Yousefi R, Yarmohammadi L, et al. The changes of metabolic profile and weight during Ramadan fasting. *Singapore Med J*. 2006; 47(5): 409-14.
20. Fedail SS, Murphy D, Salih SY, Bolton CH, Harvey RF. Changes in certain blood constituents during Ramadan. *Am J Clin Nutr*. 1982; 36(2): 350-3.
21. Hallak MH, Nomani MZ. Body weight loss and changes in blood lipid levels in normal men on

- hypocaloric diets during Ramadan fasting. *Am J Clin Nutr.* 1988; 48(5): 1197-210.
22. Kassab S, Abdul-Ghaffar T, Nagalla DS, Sachdeva U, Nayar U. Interactions between leptin neuropeptide-Y and insulin with chronic diurnal fasting during Ramadan. *Ann Saudi Med.* 2004; 24(5): 345-9.
23. Rohin MAK, Rozano N, Abd Hadi N, Mat Nor MN, Abdullah S, Dandinasivara Venkateshaiah M. Anthropometry and body composition status during Ramadan among higher institution learning center staffs with different body weight status. *Scientific World Journal.* 2013; 2013: 308041.
24. Sanders SW, Moore JG. Gastrointestinal chronopharmacology: physiology pharmacology and therapeutic implications. *Pharmacol Ther.* 1992; 54(1): 1-15.
25. Sweileh N, Schnitzler A, Hunter GR, Davis B. Body composition and energy metabolism in resting and exercising muslims during Ramadan fast. *J Sports Med Phys Fitness.* 1992; 32(2): 156-63.
26. Hajek P, Myers K, Dhanji AR, West O, McRobbie H. Weight change during and after Ramadan fasting. *J Public Health (Oxf).* 2012; 34(3): 377-81.
27. Sadeghirad B, Motaghipisheh S, Kolahdooz F, Zahedi MJ, Haghdoost AA. Islamic fasting and weight loss: a systematic review and metaanalysis. *Public Health Nutr.* 2014; 17(2): 396-406.
28. Kul S, Savaş E, Öztürk ZA, Karadağ G. Does Ramadan fasting alter body weight and blood lipids and fasting blood glucose in a healthy population? A meta-analysis. *J Relig Health.* 2014; 53(3): 929-42.
29. Al-Shafei AI. Ramadan fasting ameliorates arterial pulse pressure and lipid profile and alleviates oxidative stress in hypertensive patients. *Blood Press.* 2014; 23(3): 160-7.
30. Adlouni A, Ghalim N, Benslimane A, Lecerf JM, Saïle R. Fasting during Ramadan induces a marked increase in high-density lipoprotein cholesterol and decrease in low-density lipoprotein Cholesterol. *Ann Nutr Metab.* 1997; 41(4): 242-9.
31. Zare A, Hajhashemi M, Hassan ZM, Zarrin S, Pourpak Z, Moin M, et al. Effect of Ramadan Fasting on serum heat shock protein 70 and serum lipid profile. *Singapore Med J.* 2011; 52(7): 491-5.
32. Al-Shafei AI. Ramadan fasting ameliorates oxidative stress and improves glycemic control and lipid profile in diabetic patients. *Eur J Nutr.* 2014; 53(7): 1475-81.
33. Mansi KMS. Study the effects of Ramadan fasting on the serum glucose and lipid profile among healthy Jordanian students. *Am J Appl Sci.* 2007; 4(8): 565-9.
34. Adlouni A, Ghalim N, Saïle R, Hda N, Parra HJ, Benslimane A. Beneficial effect on serum apo AI apo B and Lp AI levels of Ramadan fasting. *Clin Chim Acta.* 1998; 271(2): 179-89.
35. Faris ME, Hussein RN, Al-Kurd RA, Al-Fararjeh MA, Bustanji YK, Mohammad MK. Impact of Ramadan intermittent fasting on oxidative stress measured by urinary 15-f(2t)-isoprostane. *J Nutr Metab.* 2012; 2012: 802924.
36. Lamri-Senhadji MY, El Kebir B, Belleville J, Bouchenak M. Assessment of dietary consumption and time-course of changes in serum lipids and lipoproteins before during and after Ramadan in young Algerian adults. *Singapore Med J.* 2009; 50(3): 288-94.
37. Heilbronn LK, Civitarese AE, Bogacka I, Smith SR, Hulver M, Ravussin E. Glucose tolerance and skeletal muscle gene expression in response to alternate day fasting. *Obes Res.* 2005; 13(3): 574-81.
38. Boden G, Chen X, Mozzoli M, Ryan I. Effect of fasting on serum leptin in normal human subjects. *J Clin Endocrinol Metab.* 1996; 81(9): 3419-23.
39. Harvie MN, Pegington M, Mattson MP, Frystyk J, Dillon B, Evans G, et al. The effects of intermittent or continuous energy restriction on weight loss and metabolic disease risk markers: a randomized trial in young overweight women. *Int J Obes (Lond).* 2011; 35(5): 714-27.
40. Faris MA, Kacimi S, Al-Kurd RA, Fararjeh MA, Bustanji YK, Mohammad MK, et al. intermittent fasting during Ramadan attenuates proinflammatory cytokines and immune cells in healthy subjects. *Nutr Res.* 2012; 32(12): 947-55.
41. Aksungar FB, Topkaya AE, Akyildiz M. Interleukin-6 C-reactive protein and biochemical parameters during prolonged intermittent fasting. *Ann Nutr Metab.* 2007; 51(1): 88-95.
42. Fontana L, Partridge L, Longo VD. Extending healthy life from yeast to humans. *Science.* 2010; 328(5976):321-6.
43. Hendawy A. Effect of Fasting on Renal Physiology. *J Fasting Health.* 2014; 2(3): 110-2.
44. Azizi F, Rasouli HA. Serum glucose, bilirubin, calcium, phosphorus, protein and albumin concentrations during Ramadan. *Med J Islam Repub Iran.* 1987; 1(1): 38-41.
45. Boobes Y, Bernieh B, Al Hakim MR. Fasting Ramadan in kidney transplant patients is safe. *Saudi J Kidney Dis Transpl.* 2009; 20(2): 198-200.
46. Salahuddin M, Javed MH. Effects of Ramadan Fasting on Some Physiological and Biochemical Parameters in Healthy and Hypertensive Subjects in Aurangabad District of Maharashtra, India. *J Fasting Health.* 2014; 2(1): 7-13.
47. Rokaya OAE, El-Batae HE, Tawfeek S. Ramadan fasting improves kidney functions and ameliorates oxidative stress in diabetic patients. *World Journal of Medical Sciences.* 2012; 7(1): 38-48.
48. Miladipour AH, Shakhssalim N, Parvin M, Azadvari M. Effect of Ramadan fasting on urinary risk factors for calculus formation. *Iran J Kidney Dis.* 2012; 6(1): 33-8.
49. Siadat Z, Rastin M, Tabasi N, Rezaee A, Mahmoudi M. Evaluation of the Effects of Ramadan Fasting on Lymphocyte subpopulations in a Two-year Follow-up. *J Fasting Health.* 2014; 2(1): 31-36.

50. Pawelec G, Adibzadeh M, Pohla H, Schaudt K. Immunosenescence: again of the immune system. *Immunol Today*. 1995; 16(9): 420-2.
51. Celik I, Barista I, Firat D. Cancer therapy during Ramadan. *J Natl Cancer Inst*. 1996; 88(12): 838.
52. Abbas AK, Lichtman AH, Pober JS. Cellular and molecular immunology. 4th ed. Philadelphia: WB Saunders Co; 2000: 466-7.
53. Kuziv Ole. The effect of complete fasting on the structural – functional organization of the white pulp of the spleen. *Fiziol Zh*. 1997; 43(1-2): 89-100.
54. Rogozina OP, Bonorden MJ, Seppanen CN, Grande JP, Cleary MP. Effect of chronic and intermittent calorie restriction on serum adiponectin and leptin and mammary tumorigenesis. *Cancer Prev Res (Phila)*. 2011; 4(4): 568-81.
55. Longo VD, Mattson MP. Fasting: molecular mechanisms and clinical applications. *Cell Metab*. 2014; 19(2): 181-92.
56. Morselli E, Maiuri MC, Markaki M, Megalou E, Pasparaki A, Palikaras K, et al. Caloric restriction and resveratrol promote longevity through the Sirtuin-1-dependent induction of autophagy. *Cell Death Dis*. 2010; 1: e10-8.
57. Mercken EM, Carboneau BA, Krzysik-Walker SM, de Cabo R. Of mice and men: the benefits of caloric restriction exercise and mimetics. *Ageing Res Rev*. 2012; 11(3): 390-8.
58. Rothman SM, Griffioen KJ, Wan R, Mattson MP. Brain-derived neurotrophic factor as a regulator of systemic and brain energy metabolism and cardiovascular health. *Ann N Y Acad Sci*. 2012; 1264(1): 49-63.
59. Fontana L, Klein S. Aging adiposity and calorie restriction. *JAMA*. 2007; 297(9): 986-94.
60. Anson RM, Guo Z, de Cabo R, Iyun T, Rios M, Hagepanos A, et al. Intermittent fasting dissociates beneficial effects of dietary restriction on glucose metabolism and neuronal resistance to injury from calorie intake. *Proc Natl Acad Sci U S A*. 2003; 100(10): 6216–20.
61. Panowski SH, Wolff S, Aguilaniu H, Durieux J, Dillin A. PHA-4/Foxa mediates diet-restriction-induced longevity of *C. elegans*. *Nature*. 2007; 447(7144): 550–5.
62. Sadati AK, Lankarani KB, Gharibi V, Fard ME, Ebrahimzadeh N, Tahmasebi S. Religion as an empowerment context in the narrative of women with breast cancer. *J Relig Health*. 2015; 54(3): 1068-79.
63. Holt-Lunstad J, Steffen PR, Sandberg J, Jensen B. Understanding the connection between spiritual well-being and physical health: an examination of ambulatory blood pressure inflammation blood lipids and fasting glucose. *J Behav Med*. 2011; 34(6): 477-88.
64. Kazemi M, Karimi S, Ansari A, Negahban T, Hosseini SH, Vazirinejad R. The Effect of Ramadan Fasting on Psychological Health and Depression in Sirjan Azad University Students. *Journal of Rafsanjan University of Medical Sciences*. 2006; 5 (2): 117-22. (Persian)
65. Khoshniat Nikoo M, Shadman ZH, Larijani B. Ramadan fasting mental health and sleep-wake pattern. *Iranian South Medical Journal*. 2012; 15(2): 137-49.
66. Kalateh Sadati A. Islamic Worldview Fasting and Health. *J Nutrition Fasting Health*. 2018; 6(2): 104-6.
67. Abuznaid S. Islam and management: what can be learned? *Thunderbird International Business Review*. 2006; 48(1): 125-39.
68. Koenig H, King D, Carson VB. *Handbook of religion and health*. 2nd Ed. New York: Oxford University Press; 2012.
69. Feizollahzadeh S, Rasuli J, Kheirouri S, Alizadeh M. Augmented plasma adiponectin after prolonged fasting during Ramadan in men. *Health Promot Perspect*. 2014; 4(1): 77-81.
70. Norouzy A, Salehi M, Philippou E, Arabi H, Shiva F, Mehrnoosh S, et al. Effect of fasting in Ramadan on body composition and nutritional intake: a prospective study. *J Hum Nutr Diet*. 2013; 26 Suppl 1: 97-104.
71. Ghahremani M, Delshad A, Tavakolizadeh J. The study of Ramadan fasting effect on Moslems mental health. *Ofoogh-E-Danesh Journal*. 2000; 6: 3–13.