

Research Paper

The Effects of Fasting on Physical and Mental Health: Islamic and Scientific Insights



Mohammad Mahde Kateb Qoje Baglo^{1*} , Sayyed Mahdi Hosseini²

1. Department of Islamic Studies, Farhangian University, Allameh Tabatabaei Campus of Ardabil, Ardabil, Iran.

2. Department of Islamic Studies, Farhangian University, Tehran, Iran.



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ABSTRACT

Background and Objective: Fasting, an Islamic practice with spiritual importance, has potential benefits for physical and mental health. Despite numerous studies, there is a lack of comprehensive comparative study on the effects of fasting based on Islamic teachings and scientific findings. This study aims to investigate the effects of fasting on physical and mental health by comparing perspectives from Islamic and scientific sources.

Materials & Methods: This study used a directed qualitative content analysis method. The data were collected from Islamic texts in English or Arabic, including the Quran, Hadiths, and interpretations, as well as scientific articles in medicine and psychology published in English up to 2023, which were searched in PubMed, Scopus, or Web of Science databases. Data were analyzed to identify similarities and differences between Islamic and scientific perspectives.

Results: Fasting affects physical health by reducing inflammation, regulating metabolism and weight balance, enhancing immune system function, and improving cardiovascular and gastrointestinal health. Fasting affects mental health by reducing stress and anxiety, strengthening willpower and self-control, boosting happiness and spiritual intelligence, and improving social cohesion. The comparative study revealed that Islamic and scientific findings are mostly in agreement, though differences exist between their approaches and objectives.

Conclusion: This study highlights the compatibility between Islamic teachings and scientific findings regarding the mental and physical health benefits of fasting, emphasizing the potential of integrating Islamic practices into scientific strategies to enhance individual and social well-being.

Keywords: Fasting, Health, Islam, Religion, Biomedical Research

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* Corresponding Author:

Mohammad Mahde Kateb Qoje Baglo

Address: Department of Islamic Studies, Farhangian University, Allameh Tabatabaei Campus of Ardabil, Ardabil, Iran.

Phone: +98 (914) 7088741

E-mail: Mohammadmahde84@gmail.com



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Introduction

Fasting, a significant practice in Islam, involves refraining from food, drink, and certain behaviors from dawn to sunset as an act of worship. Beyond its spiritual significance, fasting is increasingly recognized for its potential benefits to physical and mental health. Islamic teachings emphasize fasting as a means of self-purification, strengthening self-control, and fostering spiritual growth [1, 2]. Concurrent studies have highlighted the role of fasting in regulating metabolism, including appetite control through hormones such as ghrelin, reducing inflammation, and improving psychological well-being, including stress reduction and enhanced cognitive function [3-5]. Despite these insights, a comprehensive comparative analysis integrating Islamic teachings and scientific findings on the health effects of fasting remains limited. Previous studies have often focused on either religious or scientific data, lacking an interdisciplinary approach [2, 6]. This study aims to address this gap by examining the agreement between Islamic teachings and scientific evidence regarding the physical and mental health benefits of fasting and exploring how this agreement can be leveraged to promote health in society.

Materials and Methods

This is a qualitative study using the directed content analysis method, which was selected because it allows for the integration of existing theoretical frameworks (Islamic teachings and scientific literature) to guide the analysis while identifying similarities and differences between the two domains [7]. Inclusion criteria for the Islamic sources were: Primary Islamic texts, including the Quran, authentic Hadiths from major collections (e.g. Sahih al-Bukhari's Bihar al-Anwar book), and scholarly interpretations published in Arabic or English up to 2023, focusing on fasting and its effects on physical and mental health. Inclusion criteria for the scientific sources were: articles and books published in English up to 2023, indexed in PubMed, Scopus, or Web of Science databases, addressing the physiological and psychological effects of fasting (e.g. intermittent fasting, Ramadan fasting). Non-peer-reviewed articles, unpublished manuscripts, or studies lacking clear methodology were excluded. Islamic sources not directly addressing health-related aspects of fasting or scientific studies with small sample sizes ($n < 20$) were also excluded to ensure reliability.

Data were collected through purposive sampling to ensure relevance to the research objectives. Among Islamic sources, key texts were selected from reputable Islamic books and databases (e.g. Al-Mustafa Virtual Library). Among scientific sources, articles were retrieved from PubMed, Scopus, and Google Scholar using keywords such as "fasting," "Ramadan," "health," and "mental health." Figure 1 shows the diagram of the study process.

According to the directed content analysis approach, a priori codes were first developed based on key themes (e.g. physical health, mental health) derived from Islamic and scientific sources. Islamic and scientific findings were coded into similar categories for comparison. Coded data from both sources were compared to identify similarities (e.g. reduced inflammation) and differences (e.g. spiritual vs. physiological effect). NVivo software, version 12 was used to manage and analyze qualitative data.

To ensure rigor, the following measures were implemented: Triangulation, peer debriefing, audit trail, and Inter-coder agreement. In triangulation, multiple sources (Quran, Hadiths, scientific studies) were used to cross-validate findings. In peer debriefing, two independent researchers reviewed the coding framework and analysis to ensure consistency. In the audit trail, a detailed record of the history of data collection and analysis was done for transparency. The inter-coder agreement was assessed using Cohen's kappa coefficient, which was obtained as 0.85, indicating high agreement. Based on the comparative analysis, practical recommendations were finally developed to integrate Islamic teachings and scientific findings for promoting community health.

Results

A total of 25 Islamic sources (10 Quranic verses, 10 Hadiths, 5 interpretations) and 30 scientific articles (20 medical, 10 psychological) were included. The analysis generated 150 open codes, organized into 6 main themes (physical health, mental health, detoxification, metabolism regulation, stress reduction, social cohesion) and 12 sub-themes mentioned in Table 1.

Impact of fasting on physical health

Fasting significantly influences physical health through various mechanisms, as observed in both Islamic teachings and scientific research.

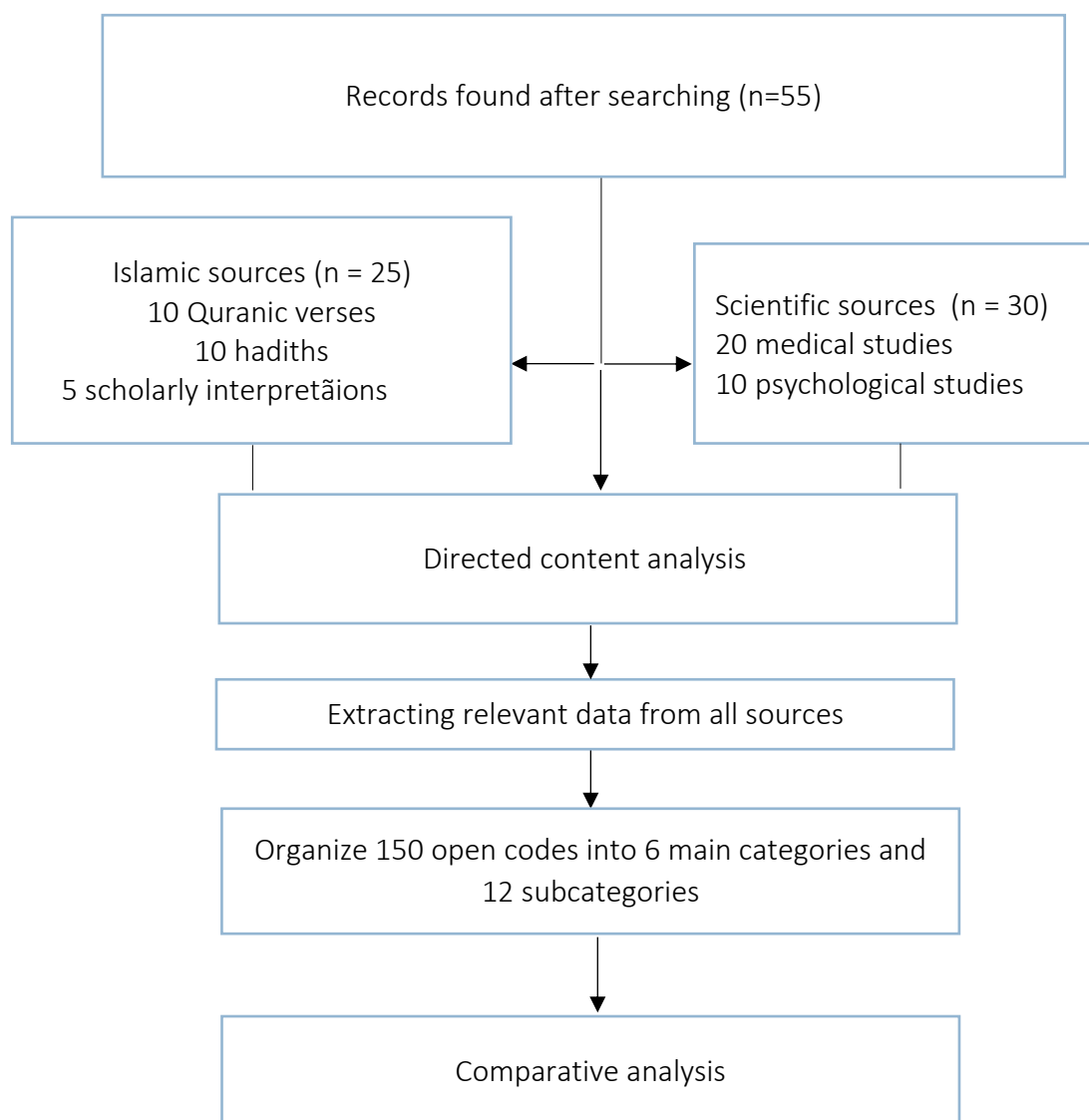


Figure 1. Diagram of the study process

Current Psychosomatic Research

Metabolic regulation

Fasting regulates metabolism by shifting the body's energy source from glucose to fats, a process known as ketosis. This leads to weight loss, improved blood sugar control, and reduced risk of type 2 diabetes. During fasting, insulin levels decrease and glucagon levels increase, promoting lipolysis and fatty acid release. The body initially uses liver glycogen stores, then transitions to gluconeogenesis to maintain blood glucose levels. Islamic teachings view fasting as a means to control nutrition and prevent metabolic disorders, emphasizing moderation in eating.

Inflammation reduction and detoxification

Fasting reduces chronic inflammation by lowering pro-inflammatory cytokines, decreasing the risk of diseases like diabetes, cardiovascular conditions, and neurodegenerative disorders. It activates autophagy, a cellular cleansing process that removes damaged components and enhances immune function. Fasting also increases hematopoietic stem cells, strengthening immune responses and reducing oxidative stress. Islamic teachings describe fasting as a method to purify the body and promote overall health, aligning with these physiological benefits.

Table 1. Themes, sub-themes, and sources of findings

Theme	Sub-theme	Findings From Islamic Sources	Findings From Scientific Sources
Physical health	Metabolic regulation	Moderation in eating and drinking to prevent disorders; Quran and Hadith emphasize balance.	Fasting lowers blood sugar, improves insulin sensitivity, and promotes fat metabolism (ketosis).
	Inflammation reduction & detoxification	Fasting described as purification of body and soul.	Reduces pro-inflammatory cytokines, activates autophagy, enhances immune function.
	Cardiovascular health	Traditions warn against overeating to prevent heart diseases.	Lowers blood pressure, LDL cholesterol, oxidative stress; improves vascular flexibility.
	Gastrointestinal health	Digestive rest during fasting promotes bodily well-being.	Improves gut microbiota, reduces inflammation, alleviates reflux.
Mental health	Stress and anxiety reduction	Quran associates fasting with tranquility (sakina) and relief from inner burdens.	Lowers cortisol, increases serotonin and endorphins, improving mood.
	Willpower and self-control	Hadiths highlight fasting as strengthening patience (ṣabr) and self-discipline.	Enhances prefrontal cortex activity, supporting emotional regulation and decision-making.
	Happiness & spiritual intelligence	Fasting linked to joy, spiritual elevation, and closeness to God.	Associated with higher life satisfaction, reduced depressive symptoms, improved well-being.
	Social relationships	Strengthens empathy, compassion, and solidarity, especially in Ramadan rituals (e.g. Iftar).	Studies show increased empathy, altruism, and community bonding during fasting periods.

Current Psychosomatic Research

Cardiovascular health

Fasting improves cardiovascular health by lowering blood pressure, reducing bad cholesterol (LDL), and increasing good cholesterol (HDL). It reduces oxidative stress and enhances vascular flexibility, thereby lowering the risk of heart attacks and strokes. Islamic teachings advocate moderation in food consumption to prevent heart disease, reinforcing the importance of a balanced diet.

Gastrointestinal health

Fasting can promote gastrointestinal health by reducing intestinal inflammation, enhancing gut microbiota composition, and alleviating gastric reflux. It allows the digestive system to rest, repair, and regenerate, promoting better digestion and immune function. Islamic teachings emphasize the importance of avoiding overeating to maintain digestive health, aligning with these findings.

Impact of fasting on mental health

Fasting has a positive impact on mental health through various mechanisms, thereby enhancing emotional and psychological well-being.

Stress and anxiety reduction

Fasting lowers cortisol levels, reducing stress and anxiety. It increases endorphins and serotonin, improving mood and promoting calmness. Islamic teachings associate fasting with spiritual tranquility, suggesting that it promotes inner peace and alleviates mental burdens.

Willpower and self-control

Fasting strengthens willpower by requiring individuals to refrain from food, drink, and certain actions. This practice enhances activity in the brain's prefrontal cortex, improving decision-making and emotional regulation. Islamic teachings describe fasting as a method for cultivating patience and self-discipline.

Happiness and spiritual intelligence

Fasting boosts happiness through increased dopamine and endorphin levels, reducing depressive symptoms. It enhances spiritual intelligence by fostering a deeper understanding of life's purpose. Islamic teachings view fasting as a path to spiritual elevation and inner joy.

Social relationships and social cohesion

Fasting promotes empathy and social cohesion, particularly during collective practices like Ramadan. It encourages altruism and reduces loneliness through shared activities like Iftar. Islamic teachings emphasize fasting's role in strengthening community bonds.

Comparative analysis of Islamic teachings and scientific findings

The comparative analysis revealed significant agreement between Islamic teachings and scientific findings, with some differences.

Similarities

Both perspectives recognize fasting's role in detoxifying the body, regulating metabolism, reducing stress, enhancing willpower, and strengthening social bonds. Islamic teachings emphasize moderation and spiritual purification, while scientific studies highlight physiological mechanisms like autophagy and cortisol reduction.

Theoretical differences

Islamic teachings prioritize spiritual goals, such as piety and closeness to God, while scientific sources focus on health outcomes without spiritual dimensions. Islamic fasting follows a fixed schedule (dawn to sunset), whereas intermittent fasting, a scientific model, varies in timing. Islamic teachings exempt certain individuals from fasting, while scientific studies note potential challenges, such as reduced concentration.

Research challenges

Scientific studies often overlook variables such as age and lifestyle, use limited sample sizes, and lack long-term data. Islamic sources rely on qualitative textual analysis, have diverse interpretations, and struggle to quantify spiritual outcomes.

Discussion

This study demonstrated that fasting has significant benefits for physical and mental health, and there is considerable agreement between Islamic teachings and scientific findings regarding the benefits of fasting. Fasting affects physical health by improving metabolism, balancing weight, reducing inflammation, enhancing immune function, and improving cardiovascular and gastrointestinal health. Studies have reported that fasting reduces blood sugar by 3–6% and improves insulin

sensitivity [8, 9], and has a role in activating autophagy and reducing pro-inflammatory cytokines [10, 11]. Fasting's ability to lower blood pressure, LDL cholesterol, and oxidative stress has been reported by studies on hypertensive and healthy individuals during Ramadan [12–15]. Fasting remodels the gut microbiome, enhancing gastrointestinal health [16].

Our results also showed that fasting affects mental health by reducing stress, enhancing willpower, boosting happiness and spiritual intelligence, and improving social cohesion. Research has shown that fasting lowers cortisol and increases serotonin [17], which can lead to stress reduction and mood improvement. The enhancement of spiritual intelligence through fasting, as emphasized in Islamic teachings, aligns with studies linking spiritual practices to higher life satisfaction and mental well-being [18, 19]. Fasting strengthens willpower and self-control by enhancing prefrontal cortex activity, as evidenced by research on emotional intelligence and behavioral regulation [20, 21]. The social benefits of fasting, particularly during Ramadan, have been shown by studies that highlighted increased empathy and community bonding [18, 22].

There are some differences between Islamic and scientific perspectives regarding the effects of fasting. Islamic teachings prioritize spiritual goals, such as piety and soul purification, while scientific sources focus on physiological and psychological outcomes. These differences highlight the potential for an interdisciplinary approach that integrates Islamic and scientific perspectives to promote holistic well-being.

This study had some limitations. The selection of sources was limited to English and Arabic texts published up to 2023, potentially excluding relevant studies in other languages. Also, the study focused on Islamic fasting (Ramadan) and intermittent fasting, which may limit generalizability to other fasting practices. Finally, the study did not differentiate between short-term and long-term effects of fasting, which could influence the applicability of findings to chronic health conditions. Despite these limitations, the study provides important information for understanding fasting's health benefits based on a comparative analysis of Islamic and scientific findings. Future research should employ interviews or survey methods, incorporate broader sources, or utilize longitudinal designs to address these limitations.

Conclusion

This study demonstrated that fasting has multifaceted benefits for both physical and mental health, as confirmed by Islamic teachings and supported by scientific findings. The comparative analysis revealed significant overlap between the two perspectives, showing that fasting improves metabolism, reduces inflammation, strengthens the immune system, regulates cardiovascular and gastrointestinal functions, and enhances mental well-being through stress reduction, greater self-control, spiritual intelligence, and social cohesion. While Islamic teachings emphasize spiritual goals such as piety, purification of the soul, and community solidarity, scientific literature highlights physiological and psychological mechanisms underlying these outcomes.

The findings suggest that integrating Islamic perspectives with biomedical research can provide a more holistic understanding of health, bridging spirituality and science. Such an approach may also inform health promotion strategies that respect cultural and religious values while addressing physical and mental well-being.

Future studies are recommended to employ mixed-method approaches, expand the scope to diverse fasting traditions, and conduct longitudinal research to explore long-term health outcomes. By combining Islamic wisdom with contemporary scientific insights, fasting can be further recognized as a powerful practice for enhancing individual health and strengthening social harmony.

Ethical Considerations

Compliance with ethical guidelines

This article is a meta-analysis with no human or animal sample.

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Authors' contributions

All authors contributed equally to the conception and design of the study, data collection and analysis, interpretation of the results and drafting of the manuscript. Each author approved the final version of the manuscript for submission.

Conflict of interest

The authors declared no conflict of interest.

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