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The Connection of Quranic Wisdom and Medical Ethics Problems in Artificial Intelligence

Mahmoud Shiri Kahnoie[1], Fatemeh Bahramnezhad[2]

1. PhD in Biomedical Engineering, Faculty of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
2. Associate Professor of Nursing Education, Department of ICU Nursing, School of Nursing & Midwifery, Nursing and Midwifery Care Research Center Tehran University of Medical Sciences, Tehran, Iran (Corresponding Author), Email: bahramnezhad.f@gmail.com, Tel: +98- 021-61054403.

ABSTRACT

Although the Quran and artificial intelligence (AI) may not appear directly related, Quranic teachings can serve as an indirect ethical guide for the appropriate use of AI in medicine. This study aims to explore healthcare professionals' perceptions of the intersection between Quranic principles and AI, grounded in medical ethics. This conventional content analysis study was conducted in 2024 through in-depth interviews with 29 experts in medical ethics, technology and AI. Participants were selected via purposive sampling, and interviews were held in their workplaces. Each interview transcript was analyzed using the Granheim and Lundman approach. Analysis of the 29 interviews revealed three main themes and 10 subthemes. The first theme, "Convergence of AI and Quranic Principles," included subthemes such as developing ethically-aligned algorithms, education, awareness and transparency in technology use. The second theme, "Ethical Principles Guided by Quranic Teachings," encompassed *human dignity, justice, trustworthiness, privacy preservation and compassionate service to humanity. The third theme, "Boundaries of AI," comprised subthemes like AI as a clinical decision-support tool, transparency and honesty and avoiding AI-driven life-and-death decisions. Healthcare professionals should draw inspiration from Quranic teachings to uphold human dignity, ensure transparency in patient communication, and deliver equitable care. Similarly, engineers and scientists must embed ethical principles—such as transparency, fairness and respect for user rights into the design of AI systems. This integration ensures that AI applications in medicine align with both technological advancement and enduring moral values.

Keywords: Holy Quran, Artificial Intelligence, Medical Ethics, Qualitative Research, Conventional Content Analysis

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Introduction

Ethics, derived from the Greek word *ethos*, meaning custom or character, is a branch of philosophy concerned with the evaluation of behavioral standards and moral judgments. As a framework for understanding moral conduct, ethics plays a fundamental role in guiding both individual and societal decision-making (1). It not only addresses the principles of right and wrong in human behavior but also encompasses professional standards across various fields, including nursing ethics and medical ethics (2). In fact, ethics provides a structure for defining appropriate conduct and reflects a set of values unique to human beings—who are the only species capable of creating and understanding moral values (3, 4). Ethics is particularly relevant in environments with intense human interaction, such as healthcare settings (5).

Among the most critical areas of applied ethics is medical ethics, which examines the principles and values governing the conduct of healthcare professionals. These principles not only enhance the quality of healthcare services but also play a vital role in maintaining human dignity and trust between patients and physicians (6). However, medical ethics faces numerous challenges, such as data confidentiality, conflicts of interest, and the ethical implications of technological advancements like artificial intelligence (AI) (7).

AI, as one of the most significant technological achievements, has brought transformative changes to the medical field. First introduced by McCarthy in 1956, AI enables computer systems to perform tasks previously thought to be exclusive to humans (8). AI includes technologies such as machine learning, natural language processing, computer vision, and machine reasoning, all of which are increasingly becoming part of our daily lives (9). Today, AI is employed in disease diagnosis, medical imaging, treatment optimization, and even robotic surgeries (10, 11). Despite its numerous benefits, the application of AI in medicine brings forth several ethical concerns, including accountability for system errors, equitable access to technology, and protection of patient privacy (12).

Although humanity has yet to find comprehensive solutions to these challenges, religious teachings—particularly those from the Holy Qur'an—may offer valuable guidance in addressing such ethical dilemmas. The Qur'an, as the holy book of Muslims, is not only a source of spiritual guidance but also emphasizes the importance of knowledge, ethics, and justice (13). Some studies suggest that the Qur'an can contribute to the design of ethically conscious AI systems (14, 15). Overall, the intersection of AI and the Qur'an presents an exciting frontier for exploration. AI can enhance accessibility, understanding, and preservation of Qur'anic teachings, making them more available to a global audience. However, integrating AI with religious principles must be approached with caution, recognizing the need for human oversight and ethical reflection (16).

Previous studies have mostly focused on the use of AI for interpreting Qur'anic texts (17, 18), while the role of the Qur'an in addressing the ethical challenges of AI in medicine remains largely unexplored. Although AI and the Qur'an may not appear directly related, the teachings of the Qur'an can offer indirect ethical guidance for the responsible use of AI in medical contexts. With adherence to Qur'anic principles, AI can serve as a transformative tool in healthcare, improving human well-being.

This study was conducted to explore healthcare professionals' perceptions of the role of the Holy

Qur'an in guiding ethically sound AI in medicine, aiming to answer the following research questions:

- What are the ethical challenges of AI in medical contexts?
- How can Qur'anic teachings help address these ethical challenges?

Materials and Methods

Study Design and Participants

This qualitative study was conducted in 2025 using conventional content analysis based on the Graneheim and Lundman approach. The study population consisted of 29 faculty members from medical universities, with expertise in at least one of the following domains: artificial intelligence, medical ethics, or Qur'anic studies. Purposeful sampling was employed, and given that the lead researcher had a background in both Hadith and Qur'anic sciences as well as medical ethics, the initial interview was conducted with a prominent Qur'anic scholar working in the field of health sciences. All interviews were held in participants' workplaces (offices or hospitals).

Data Collection

A demographic questionnaire was used to gather data on participants' age, gender, education, marital status, current department, years of academic experience, experience with AI technologies, and educational background in Qur'anic sciences.
Qualitative data were collected through semi-structured interviews and field notes. Interviews began with open-ended, general questions, followed by exploratory and specific questions based on participant responses to delve deeper into their experiences.

Each interview lasted between 45 and 90 minutes and was audio-recorded with informed consent. Additional sessions (in-person or via phone) were conducted as needed. Field notes focused on the interview context, participants' behaviors, and any influential events.

Interview Guide

Sample interview questions included:

- Can you describe your experience using an AI-based platform in treating your patients?

- Please explain your experience using AI in your area of specialization.

- Could you describe how you have applied Qur'anic verses or teachings in the use of AI?

Follow-up probes included:

- Could you elaborate on that?

- When you say..., what exactly do you mean?

- Based on your experience, can you give an example?

- Is there anything else you'd like to share?

Data Analysis

Data analysis was performed using MAXQDA version 2010. Following Graneheim and Lundman's (2020) method (19), a conventional content analysis was conducted, including the following steps:

1. Transcribing and repeatedly reading the interviews for a general understanding.
2. Extracting meaning units and condensing them into codes.
3. Summarizing and labeling the codes.

4. Comparing similarities and differences among codes to form subcategories.

5. Identifying overarching themes for final interpretation.

Trustworthiness of Data

A valid qualitative study must accurately describe, explain, or theorize a phenomenon. To ensure trustworthiness, the four criteria proposed by Lincoln and Guba were applied:

- Dependability: Ensured through expert validation of data consistency.

- Credibility: Achieved by aligning findings with participants' lived experiences.

- Transferability: The potential for applying findings to similar contexts (20).

- Confirmability: Reduction of researcher bias through independent audit and peer review.

To enhance credibility, some interviews were reviewed by external researchers, and **reflective journaling** was employed to reduce bias. Informed consent was obtained from all participants for both participation and audio recording.

Results

Interviews were conducted with 29 faculty members with a mean age of 51.04 ± 12.18 years. Detailed demographic data are presented in Table1.
Content analysis revealed three main themes and ten sub-themes, presented in Table 2.

Theme 1: Convergence of Artificial Intelligence and Qur'anic Principles

1. Designing Ethically-Oriented Algorithms
The Holy Qur'an emphasizes ethical human conduct, which can serve as the foundation for developing ethically conscious algorithms.

Honesty:
"And fear Allah and speak words of appropriate justice" *(At-Tawbah, 119)*.
This verse highlights the importance of truthfulness in speech and behavior. It was referenced by participants in the context of AI systems that avoid generating or spreading false information.

Table 1: Demographic Characteristics of Study Participants

Demographic Characteristics	***N (%) **
Gender	
Male	20 (68.96%)
Female	9 (31.03%)
Marital Status	
Single	2 (6.9%)

Married	27 (93.1%)
Employment Status	
Assistant Professor	4 (13.79%)
Associate Professor	10 (34.48%)
Full Professor	15 (51.72%)
Years of Experience as Faculty Member	
Less than 10 years	6 (20.8%)
10–20 years	18 (62.68%)
More than 20 years	5 (17.24%)
Years of Experience in Artificial Intelligence	
Less than 2 years	4 (13.79%)
2–4 years	8 (27.58%)
4–6 years	8 (27.58%)
More than 6 years	9 (31.03%)

*Relative and absolute frequency

Table 2: Emergent Themes and Sub-Themes from Participant Interviews

Theme	Sub-theme	Quotation
Convergence of AI and Quranic Principles	Developing ethical algorithms	"The idea of ethically based algorithms is extensively addressed in the Holy Quran. One of the key elements is respecting diversity and avoiding humiliation or insult, as emphasized in the verse: *'O you who have believed, let not a people ridicule [another] people...'* (Al-Hujurat: 11)."

	Education and awareness	"Responsible use of knowledge and capabilities is one of the most important aspects in applying AI within medical ethics. The verse *'And do not pursue that of which you have no knowledge…'* (Al-Isra: 36) reminds us not to act without knowledge or awareness." (Participant 8)
	Transparency in technology use	"The Quran emphasizes trust and avoiding betrayal in all matters. In verse 27 of Al-Anfal: *'O you who have believed, do not betray Allah and the Messenger or betray your trusts while you know [the consequence].'* This applies even to patient data and digital trust." (Participant 9)
Ethical Principles Inspired by Quranic Teachings	Human dignity	"Human dignity holds a central position in the Quran. The verse *'And We have certainly honored the children of Adam…'* (Al-Isra: 70) stresses the need to uphold dignity, especially when using AI in healthcare." (Participant 9)
	Justice	"*'Be just; that is nearer to righteousness'* (Al-Ma'idah: 8). This verse stresses equitable access to medical technologies, including AI platforms, to ensure fairness for all." (Participant 13)
	Trustworthiness and privacy	"The Quran is a source of all sciences. In Surah An-Nisa, verse 58, it says: *'Indeed, Allah commands you to render trusts to whom they are due…'* Physicians and AI developers must handle patient data with utmost honesty and protect patient privacy at all times." (Participant 18)
	Benevolence and service to humanity	"Benevolence is a core ethical value in the Quran. In Surah Al-Baqarah, verse 195: *'And do good; indeed, Allah loves the doers of good.'* This aligns with the principle of

		beneficence in medical ethics – serving patients sincerely and avoiding harm." (Participant 28)
Defined Boundaries of Artificial Intelligence	AI as a clinical decision support tool	"AI should not be given full autonomy in all areas; it should only act as an advisor. Even the Quran in Surah Al-Imran (3:159) emphasizes consultation: *'…consult them in matters. And when you have decided, then rely upon Allah…'* This highlights the value of human decision-making." (P29)
	Transparency and honesty	"One of the most emphasized values in the Quran is honesty in speech and action: *'And speak to people good [words]…'* (Al-Baqarah: 83). In medical AI, algorithmic transparency and honesty in communication with patients are critical." (Participant 1)
	No authority over life-and-death decisions	"Decisions on preserving or ending life should not lie with AI or even humans. Large language models (LLMs) may give absolute recommendations, but the Quran in Surah Al-Ma'idah (5:32) states: *'Whoever kills a soul... it is as if he had slain mankind entirely; and whoever saves one…'* – indicating that the sanctity of life must be respected."

Justice:

"Indeed, Allah commands you to render trusts to whom they are due and when you judge between people to judge with justice." (An-Nisa: 58). This verse emphasizes the necessity of developing justice-oriented systems that ensure fair and equitable decision-making. (Participant 18)

Patience and Accountability:

"O you who have believed, persevere and endure and remain stationed and fear Allah that you may succeed." (Aal-e-Imran: 200). Algorithms must avoid hasty or irresponsible decision-making. (Participant 20)

Altruism:

"The example of those who spend their wealth in the way of Allah is like a seed [of grain] that grows seven spikes; in each spike is a hundred grains." (Al-Baqarah: 261). This verse highlights collective benefit and the importance of designing benevolent systems. (Participant 26)

2. Education and Awareness

Although the Qur'an does not directly mention modern concepts such as artificial intelligence or medical ethics, as these are post-revelation developments, it offers general principles that can be applied to various domains, including science, education, and ethical use of technology. The Qur'an emphasizes learning as a foundation of ethics:

"Are those who know equal to those who do not know?" (Az-Zumar: 9). Awareness of medical ethical principles is essential when training AI systems. (Participant 12)

"Read in the name of your Lord who created... Taught man that which he knew not." (Al-Alaq: 1–5). AI can be effectively used as an educational tool. (Participant 2)

3. Transparency in the Use of Technology

"And do not mix the truth with falsehood or conceal the truth while you know [it]." (Al-Baqarah: 42). This verse underscores the importance of transparency in the use of data and algorithms. (Participant 13)

Theme 2: Ethical Principles under Qur'anic Teachings

1. Human Dignity

The Qur'an emphasizes the inherent value and dignity of human beings as the most honored of creation. Human dignity is a core ethical value that must be upheld in all individual and social relationships.

"And We have certainly honored the children of Adam..." (Al-Isra: 70). This verse refers to the intrinsic dignity of all people, regardless of race, gender, or religion.

"In providing care, we do not differentiate whether a patient is old or young, rich or poor—everyone deserves equal service. Technology should also serve all segments of society equitably." (Participant 11)

"O mankind, indeed We have created you from male and female... Indeed, the most noble of you in the sight of Allah is the most righteous of you." (Al-Hujurat: 13). Equality in medical services is essential and frequently emphasized in the Qur'an. (Participant 14)

2. Justice

Justice is one of the most fundamental ethical principles in the Qur'an and is essential for social harmony.

"Indeed, Allah commands justice and good conduct..." (An-Nahl: 90). Justice is a foundational value in Islamic ethics and one of the four core principles in medical ethics. Therefore, it must also be carefully considered in AI development. (Participant 10)

"Be just; that is nearer to righteousness." (Al-Ma'idah: 8). Even in technology deployment, justice must be observed. (Participant 5)

3. Trustworthiness and Privacy

"Indeed, Allah commands you to render trusts to whom they are due..." (An-Nisa: 58). Protecting patient privacy is essential in the use of medical AI. (Participant 2)

"O you who have believed, do not enter houses other than your own..." (An-Nur: 27). This verse speaks to respecting personal privacy, which applies both in social life and in AI-driven healthcare services. (Participant 6)

4. Benevolence and Service to Humanity

The Qur'an regards benevolence and service to others as among the most valuable human acts.

"And do good; indeed, Allah loves the doers of good." (Al-Baqarah: 195). Benevolence in Islam is not limited to financial support; it also includes any form of assistance, including spiritual support. (Participant 17)

"And cooperate in righteousness and piety..." (Al-Ma'idah: 2). AI systems should be designed to serve public good and avoid causing harm. (Participant 19)

Theme 3: Boundaries of Artificial Intelligence

1. AI as a Clinical Decision Support Tool

Regarding the role of AI in clinical decision-making, participants agreed that AI should not fully replace human decision-making.

"And consult among yourselves in affairs." (Ash-Shura: 38). AI should serve as an advisory tool, not a substitute for human judgment. (Participant 25)

A participant specialized in infectious diseases (Participant 16) who extensively uses AI stated:

"The essence of medical practice is consultation. One must consult to reach the best decision. It is ethically unacceptable to outsource everything to a machine.

Who takes responsibility for an AI-generated decision? What if it makes a mistake?

These are serious concerns that further highlight the importance of shared decision-making.

God has emphasized consultation in the Qur'an repeatedly." (Participant 16)

2. Transparency and Honesty

"Indeed, Allah commands you to render trusts to whom they are due..." (An-Nisa: 58). Honesty in AI-driven healthcare services is vital. (Participant 24)

3. Non-Intervention in Life-or-Death Decisions

Regarding end-of-life decisions, participants stressed that human life is sacred and only Allah has the authority over life and death.

AI, whether through machine learning or large language models, may be trained to suggest cessation of care for terminally ill patients based on probabilistic assessments. Participants cautioned against such determinations.

"And do not kill the soul which Allah has forbidden, except by right." (Al-An'am: 151). The sanctity of life prohibits AI from making such decisions. (Participant 28)

Similarly, in Surah Al-Isra (17:33):

"And do not kill the soul which Allah has forbidden [to be killed] except by [legal] right. And whoever is killed unjustly – We have given his heir authority, but let him not exceed limits in [the matter of] taking life. Indeed, he has been supported [by the law]."

"And do not throw [yourselves] with your [own] hands into destruction." (Al-Baqarah: 195). Any AI-driven action that endangers life must be strictly avoided. (Participant 28)

The findings suggest that Qur'anic principles—such as justice, honesty, human dignity, and consultation—can provide a comprehensive ethical framework for developing and implementing AI in medicine.

However, AI should never replace human judgment, particularly in critical, life-altering decisions.

Discussion

Artificial intelligence (AI) is rapidly transforming the medical field, yet it raises significant ethical challenges. Patient privacy remains one of the primary concerns, as AI systems have access to vast amounts of sensitive health data (21). This issue becomes even more complex when considering that privacy is a multidimensional and somewhat subjective concept (22). Another challenge is algorithmic transparency. Studies have shown that opaque systems can lead to discriminatory decisions, particularly when training data contains inherent biases (23). Accountability also requires careful consideration when AI systems make errors (24).

Ethics in AI ensures that the technology is developed in ways that benefit humanity and prevent harm. The Holy Quran, as the sacred book of Islam, is a rich source of moral and spiritual principles that can inspire various domains of human life. Two sensitive and vital areas—medical ethics and artificial intelligence—require a strong ethical framework due to their direct connection to human life, dignity, and well-being (25). Quranic teachings can serve as an effective guide for enhancing transparency, honesty, and respect for human rights in these two fields.

In this regard, the Holy Quran, by offering comprehensive ethical principles, can provide valuable guidance. Its emphasis on honesty (*Surah Al-Ahzab, verse 70*) aligns perfectly with the need for transparency in AI system operations. Similarly, its emphasis on human dignity (*Surah Al-Isra, verse 70*) underscores the necessity of protecting patient privacy and preventing discrimination. The Quranic principle of justice and the emphasis on trustworthiness (*Surah An-Nisa, verse 58*) can also form a solid foundation for the development of fair and accountable AI systems. These principles are not only consistent with the standards of medical ethics but can also offer a valuable framework for emerging medical technologies. Furthermore, integrating Quranic principles with modern technologies can contribute to the development of ethically guided AI in medicine—a technically efficient and ethically responsible approach that could enhance public trust in new healthcare technologies.

Conclusion

Physicians and healthcare professionals should, inspired by Quranic teachings, respect human dignity, be transparent in communicating with patients, and provide services in a fair manner. Engineers and scientists must design intelligent systems that adhere to principles such as transparency, fairness, and respect for user rights. For instance, AI algorithms should not be designed in ways that generate discrimination or misuse personal data. In this regard, the teachings of the Holy Quran—offering an ethical framework based on honesty, justice, trustworthiness, and respect for human dignity—can serve as a valuable guide for both medical ethics and AI development. In today's modern world, where technology is advancing rapidly, returning to these principles can help maintain a balance between scientific progress and human values, fostering a more just and humane society.

Authors' contributions

All authors contributed to the conception or design of the study or to the acquisition, analysis, or interpretation of the data. All authors drafted the manuscript, or critically revised the manuscript, and gave final approval of the version that was submitted for publication. All authors agree to be accountable for all aspects of the work, ensuring integrity and accuracy.

Conflict of interest & Ethical deceleration

The authors declare that they have no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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