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Islamic Medical Ethics: A Legacy of
Compassionate Care
Maryam Ellam, Safiya Kheratkar

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Enabled Clinical Workflow and Learning Support in UK
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JBIMA Editorial

Prof Sharif Kaf Al-Ghazal, Editor in Chief

Assalamo Alaikom all,

The history of medicine, like any field, is not linear, and its development over millennia has not always been well understood. Evidence based medicine is based on clinical observation, ethical responsibility, and crucially, cross-cultural intellectual transmission. Within this context, Abu al-Qasim al-Zahrawi (936–c.1013 CE)—known to the Latin West as Albucasis - stands as a seminal figure. Working in tenth-century Córdoba, modern day Spain, al-Zahrawi transformed surgery into a disciplined medical specialty, bridging Islamic Golden Age scholarship with foundational principles of contemporary clinical practice, and he is a figure worth celebrating.

Al-Zahrawi's major achievement was his thirty-volume encyclopaedia, *Kitab al-Tasrif li-man 'ajiza 'an al-ta'lif* (*The Method of Medicine*). Its final volume (number 30) focused on surgery and featured detailed descriptions alongside illustrations of surgical instruments. Al-Zahrawi addressed a broad spectrum of clinical challenges, including trauma, fractures, dentistry, obstetrics, wound care, ophthalmology, ENT and general surgery.

His work emphasized that successful surgical practice requires deep anatomical knowledge, practical experience, technical competence, and disciplined preparation. These principles closely parallel modern surgical foundations, which rely on structured training, procedural precision, infection control, and systematic care. While modern operating theatres utilize far more sophisticated technology, the core requirement remains unchanged: technical interventions must be anchored in knowledge, skill, and rigorous observation.

The dissemination of *Kitab al-Tasrif* further highlights the interconnected nature of medical history. Translated into Latin during the twelfth century, the text circulated widely across Europe, shaping medical curricula and surgical techniques for a few centuries. This transmission challenges simplistic narratives framing modern medicine as an exclusively Western progression,

demonstrating that Islamic scholars played an essential role in preserving, synthesizing, critiquing, and advancing classical knowledge. In an era where Islam is misunderstood, and the Muslim world is still struggling to adjust to challenges created by a legacy of colonialism, there is a responsibility to highlight the eminent achievements of men like him which this journal has highlighted in this edition and many before it.

Al-Zahrawi's journey from the scholarly environment of al-Andalus to the pages of European medical texts demonstrates that medical knowledge transcends geographical, linguistic, and political boundaries. His writings became part of a wider chain of transmission that contributed to the development of later surgical traditions.

Today, as medicine enters an era of robotics, artificial intelligence, genomic medicine, and increasingly sophisticated surgical technologies, his legacy offers an important historical perspective.

The work of Al-Zahrawi work can all be linked back to the first verse of the Quran ; “Read” . His discoveries and that of his contemporaries would not have been possible had they not channeled the very principles the Quran is advocating for us.

As we celebrate the start of our trainees on their respective programmes, and prepare for the beginning of a new academic year for our medical students, the lessons of early Muslim physicians and surgeons are crucial to reflect on. It is a time for renewal, for a fresh start, for a new approach. Those who came before us set the foundations. Now it is up to the next generation.

We ask Allah for guidance and strength.

Wassalam.

Prof. Sharif Kaf Al-Ghazal
JBIMA, Editor in Chief

Some achievements of Arab and Muslim Physicians have been wrongly attributed to Western Physicians

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Keywords: *History of Medicine, Arabic Medical Heritage, Islamic Medicine*

Abstract

Al-Razi is considered the first who described what is called now Baker's cyst, which is attributed to the English surgeon William Baker (1839-1896) who described it in 1877. He mentioned the necessity of removing the patella (patellectomy) in cases of comminuted fracture of the patella, which is attributed to Brooke who described it in 1937 and is called the Brooke method. Avicenna drew attention to the necessity of not splinting the fracture immediately, advising postponing it beyond the fifth day. Today, this is called the Theory of Delayed Splintage; now Professor George Perkins is considered the pioneer of this theory. The aim of this paper is to shed light on some of the Arab and Muslim physicians' achievements and contributions which in some cases, are still wrongly attributed to Western physicians.

Introduction

Incisional between the ancient civilizations, namely the Egyptian, Greek, Roman, Persian, Indian, Chinese, and the Renaissance era in Europe, there was a gap, commonly called "the dark ages", during which the flame was hosted, not by the West, but by another culture and people called the Arabs or the Moslems.

The nomenclature, "the dark ages" reflects the civilization in Europe between the 7th and 13th centuries, but it by no means expresses the state of affairs in the Arab world or the Islamic Empire at that time when knowledge and science were as bright as the midday sun.

That era, unjustifiably, has been commonly neglected and passed over, as if nothing happened. The aim of this paper is to shed light on some of the achievements of the physicians in the Arab and Muslim world and highlight those that are still wrongly attributed to some Western physicians.

Islamic Physicians:

The history of a nation is the sum total of the history of a few of its individuals. This is particularly true in the history of medicine during the Arab or Islamic period. In every stage of its development, we find men of outstanding repute, the sum total of whose efforts has constituted this magnificent chapter.

It is impossible to give an account of all the important physicians of Islam. We are therefore going to discuss some of those who were known to Medieval Europe and whose books affected its thinking and practice for centuries.

I chose an internist, Al-Razi (Razes); the physician-philosopher of Islam, Ibn-Sina (Avicenna); a surgeon, Al-Zahrawi (Abulcasis).

Al-Razi (Razes), 841-926 A.D.



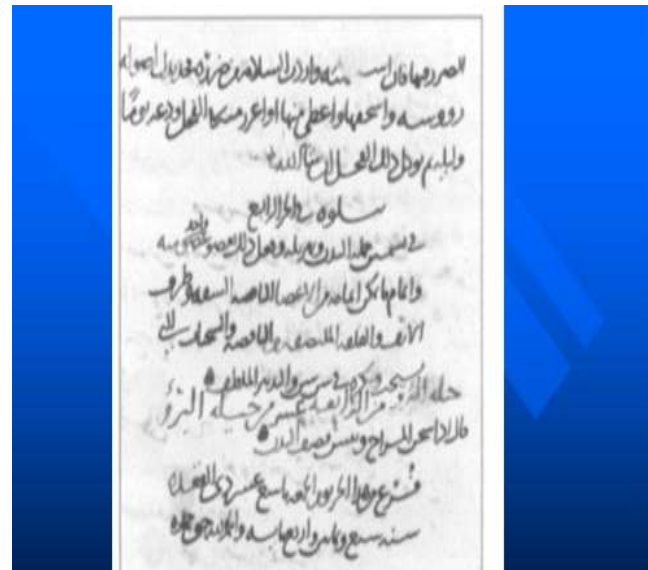
His full name is Abu-Bakr Mohammad Ibn-Zakaria Al-Razi, known to the Western World as Razes. He was born in Ray, a suburb of Tehran, the capital of modern Persia (Profile of Iran 1977, Sarton 1950). He first studied music which was his main interest in his early life. He was a skillful player on the lute. He then studied philosophy, and later medicine. But he was a better physician than a philosopher.

The most important books of Al-Razi is "Al-Hawi book", which means the complete text. It was composed of 22 volumes. It was one of the main text books in the medical school in Paris, especially its 9th volume on pharmacology.

He wrote a treatise on measles and smallpox called "de Peste or de Pestilentia" which was translated to Latin in 1565 A.D. It is a masterpiece in clinical medicine. It describes the clinical difference between the two diseases so vividly that nothing since has been added.

Some of Al-Razi most important achievements that have been attributed to Western physicians:

1. Al-Razi played an important role in keeping the medical heritage that developed over thousands of years, for al-Hawi's book represents a unique reference or document containing medical knowledge as it accumulated through many civilizations until his period
2. Al-Razi is considered the first who described what is called now Baker's cyst, though this is attributed to the English surgeon William Baker (1839-1896) who described it in 1877.
3. He mentioned the necessity of removing the patella (patellectomy) in the cases of comminuted fracture of the patella, which is attributed to Brooke who described it in 1937, and is called Brooke method.
4. He described the recurrent dislocation of the shoulder Joint and determined the predisposing factors with two methods of treatment.



The final page of a manuscript of al-Hawi by al-Razi. It is the oldest manuscript kept in NLM, and the third oldest Arabic medical manuscript



103 The knee joints are often affected.



104 Baker's cyst. Enlargement of the calf in the same patient, due to diseased synovial membrane burrowing deeply from the joint into the calf, giving rise to a 'Baker's cyst'.

Ibn-Sina (Avicenna) 980-1037 A.D.



In 980 A.D. Ibn-Sina was born in Bukhara which is now part of Uzbekistan. By the age of 10, he was already proficient in the Qur'an and Arabic classics. By the age of 16, he finished Islamic law studies, geometry, anatomy, logic and philosophy. By the age of 18, he completed the study of medicine.

Ibn-Sina wrote 100 treatises, 21 of them were major of which 16 were in medicine. He wrote in philosophy, medicine, named *Al-Qanon fi Al- Tibb* (Canon of Medicine). It was an encyclopedia containing more than one million words. It was composed of 5 volumes:

- Volume I- described the principles and theories of medicine.
- Volume II- contained the simple drugs arranged alphabetically.
- Volume III- described localized diseases of the body from the head to the toes.
- Volume IV- was addressed to generalized diseases of the body e.g. fevers.
- Volume V- explained compound drugs.

The Canon contained all medical knowledge up to the 10th century. It was translated into many languages and was the reference for medical schools in Europe up to the 17th century. Although the Canon was a great book, it overshadowed the important works prior to it by Al-Razi and Al-Zahrawi, and subsequent to it by Ibn-Al-Nafis and Ali Ibn-Abbas, Halle Abbas, (Haddad 1942).

Ibn-Sina is considered a great philosopher, and his writings affected the thinkers and influenced many of those who appeared after him. He was a unique phenomenon, not only because of these encyclopedic

accomplishments in medicine, but also because of the versatility of his genius.

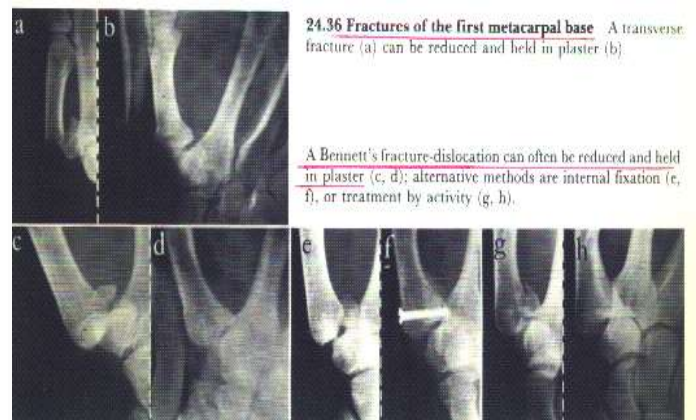
Some of Ibn-Sina most important achievements which were attributed to western physicians:

- 1- Avicenna drew attention to the necessity of not splinting the fracture immediately, advising postponing it beyond the fifth day. Today, this is called the Theory of Delayed Splintage; now Professor George Perkins is considered the pioneer of this theory.



22.17 Delayed splintage This patient's fractured ankle (a) was screwed (b). For the next few days he exercised it actively (c) but took no weight on the leg. When the wound was healed he walked in a below-knee plaster. After 6 weeks the plaster was removed; (d, e) show the ankle range 10 minutes later. Function was rapidly regained – of course it was! The patient was Professor George Perkins, the pioneer of delayed splintage.

- 2- Ibn-Sina talked about what is now called “Bennett’s fracture 1882” Described by Edward H. Bennett, Dublin surgeon (1837-1907). We know that neither al-Razi before him, nor ibn al-Quf after him, had described this type of fracture, this means that ibn-Sina is considered the first who described this fracture nearly one thousand years before Bennett.



24.36 Fractures of the first metacarpal base A transverse fracture (a) can be reduced and held in plaster (b).

A Bennett's fracture-dislocation can often be reduced and held in plaster (c, d); alternative methods are internal fixation (e, f), or treatment by activity (g, h).

Al-Zahrawi (Albucasis) 930-1013 A.D.



His full name is Abu-Al-Qasim KhalafIbn'Abbas Al-Zahrawi. He had been known in the Western World as Abulcasis. He is the famous surgeon of the Arabs. In 930 A.D., he was born in Al-Zahra, a suburb of Cordova.

Al-Zahrawi wrote only one book "Al-Tastif Liman Ajiz'an Al-Ta'lif" which is the best medieval surgical encyclopedia. It was used in Europe until the 17th century. He stressed the importance of basic sciences: "... Before practicing, one should be familiar with the science of anatomy and the functions of organs so that he will understand them, recognize their shape, understand their connections, and know their borders. Also he should know the bones, nerves, and muscles, their numbers, their origin and insertions, the arteries and the veins, their start and end. These anatomical and physiological bases are important, and as said by Hippocrates: 'These are many physicians by title and a few by practice.' ... During the time of Al-Zahrawi, surgery in the Islamic world became a respected specialty practiced by reputable physicians. On the contrary in Europe, surgery was belittled and practiced by barbers and butchers. In 1163 A.D., the Council of Tours declared the following resolution "Surgery is to be abandoned by the schools of medicine and by all *decent* physicians."

Some of Al-Zahrawi most important achievements and attributed to western physicians:

1. Al-Zahrawi is mentioning three methods for stopping a Haemorrhage: by ligation, cauterization and by compressing the artery, so he has advised for stopping hemorrhage, by using ligation of the vessels before Ambroise Pare in 1552.

2. Al-Zahrawi mentioned too what is now called Trendelenburg Position, which was described by German Surgeon Freidrich Trendelenburg (1844-1924).
3. He differentiated between different types of fractures: avulsion, crushing, penetrating reaching the membrane or superficial, hairline fracture. And he described in detail how to remove the depression fracture.

Conclusion:

The concept that medicine is exclusively the product of Western minds, remains unquestioned by most individuals. A review of any of the standard texts or encyclopedias regarding the history of medicine would support this view. Most modern medical textbooks give little or no mention of the advancements made by ancient Indian, Chinese or, particularly, Arab and Muslim physicians. The British surgeon, George Perkins, is now considered the pioneer of what is called the delayed splintage theory, while we can see that Ibn-Sina talked about this theory in his book Al-Qanunn one thousand years before Perkins. George Sarton states that modern Western medicine did not originate from Europe and that it actually arose from the (Arabic and Islamic) orient. This paper reviewed some of Arab and Muslim physicians' achievements, which are still attributed to Western physicians.

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Mental Health in the Islamic Golden Age: al-Balkhi and Early Descriptions of Obsessive-Compulsive Disorder

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Keywords: *Abu Zayd al-Balkhi; Islamic Golden Age; history of psychiatry; obsessive-compulsive disorder; OCD; ICD-11; Sustenance of the Soul; cognitive behavioural therapy; mind-body medicine; Islamic medicine*

Poster was presented at the BIMA National Conference in Glasgow on 2.5.2026

Abstract

This poster explores the early descriptions of obsessive-compulsive disorder (OCD) in a historical text, by Abu Zayd al-Balkhi, a polymath from the 9th century CE. Al-Balkhi's work provides one of the earliest systematic accounts of OCD-like symptoms, distinguishing his observations from those of earlier figures like Galen. Analysis of his main treatise has been conducted with use of the modern classification ICD-11, aimed to underscore the evolution of the conceptualisation and terminology of OCD over time. The findings indicate a more nuanced understanding in relation to aetiology, presentation, vulnerability factors and their relationships. This study hopes to emphasise the importance of historical perspectives in enriching our understanding of psychiatric disorders.

Introduction

Abu Zayd Al-Balkhi (850-934) was a notable polymath from ninth-century Persia & most famous for his contributions to the field of medicine. Only recently rediscovered and translated into the English language in 2013, Al-Balkhi's book 'Sustenance for Bodies and Soul' is arguably his most revered text of modern times. This book lays down ground-breaking concepts & Balkhi may have been the first to pioneer the complex interaction

between one's mental and physical health – "If the psyche gets sick, the body may also find no joy in life with development of physical illness" [1] - an idea which Western psychologists only began to explore a millennia later. This poster sets out to explore how OCD symptoms were historically described in a ninth century manuscript, in comparison to a modern-day classification of symptomatology as described in ICD-11. Further, this work explores how Al-Balkhi integrated a

multifaceted social, psychological, and physical treatment plan for OCD.

Methodology

The English translation of the manuscript 'Sustenance for Bodies and Soul' was initially studied by two researchers via the triangulation method, before the reading was verified by a third. A reading of the book took place in three stages. Firstly, to identify key words (including obsessions, sadness, mood, depression, anxiety, compulsions, fear, anger and isolation). Secondly to explore the usage of these core psychological terms and their definitions. Lastly, to compare & contrast the conceptualisation of OCD from Al-Balkhi's historical manuscripts findings against a modern classification approach, ICD-11. This allowed the development of central themes (grouped under aetiology, symptomology & therapeutic techniques).

Al-Balkhi's Theory

Al-Balkhi's theory centres on anxiety as the root cause of

mental health disorders. Whilst he identified obsessional behaviours as stemming from both psychological and physical factors, he also suggested that OCD has a strong heritable component. He recognised that obsessive thoughts negatively impacted on physical health and that sufferers might experience altered thinking, referred to today as cognitive distortions, such as catastrophic thinking—a central therapeutic component in cognitive-behavioural therapy (CBT). Al-Balkhi's OCD treatment includes methods he suggested for other disorders, like the 'exposure therapy' he recommended for phobias. He also noted the aggravation of symptoms through isolation and inactivity, highlighting social and behavioural strategies to mitigate symptoms, which again, resonates with modern therapeutic recommendations. The results of our analysis are summarised in two infographics, the first comparing Al-Balkhi's work to ICD-11's core features, and the second to its 'additional features'.

Results: Comparison of OCD in ICD-11 and Balkhi's 'Sustenance of the Soul' :

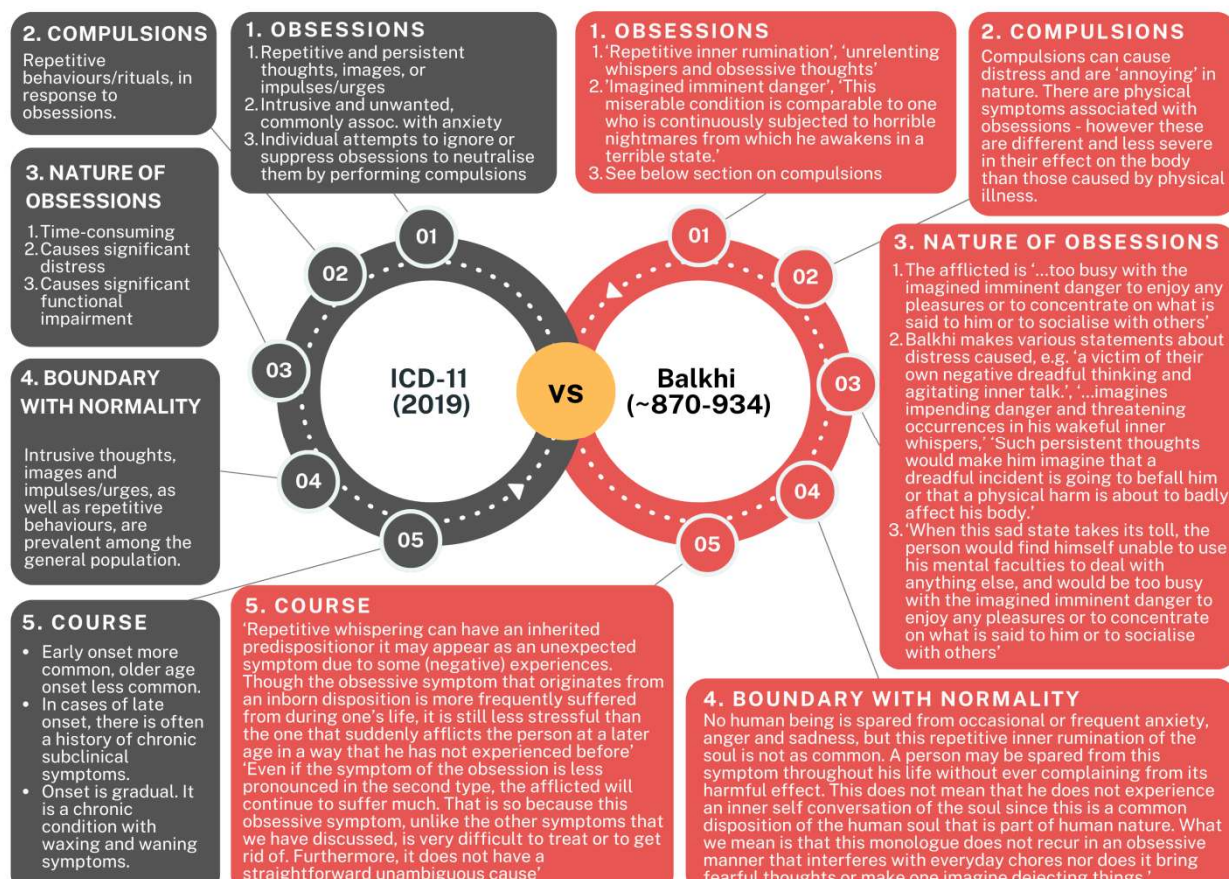


Figure 1. Infographic comparison of OCD in ICD-11 and Balkhi's 'Sustenance of the Soul'.



Figure 2. Infographic comparison of OCD in ICD-11's 'Additional Features' and Balkhi's 'Sustenance of the Soul'.

Discussion

For OCD, Al-Balkhi gives a multifaceted treatment plan, acknowledging the complex nature of the condition. Management of OCD is divided into three 'outward' treatments and seven 'inward' treatments, as is delineated below.

Outer Treatments (Tx) - Behavioural Advice

1. Firstly, Al-Balkhi recommends to 'avoid being alone since loneliness would naturally stimulate

negative thought and harmful self-talk.' This advice may be less emphasised in contemporary treatment, where the medical model is populated. Recent studies confirm that social engagement can positively impact individuals with OCD. [2]

2. Al-Balkhi advises against idleness, as inactivity fosters internal rumination. Engagement in meaningful work or activities is emphasised by Balkhi; this can distract from obsessive thoughts, a notion supported by modern research, which

shows that structured activities improve outcomes for OCD sufferers. [3]

3. Lastly, he encourages seeking counsel from trusted friends or relatives, who can offer support and challenge irrational beliefs. Receiving social support correlates with greater psychological and physical wellbeing. [4]



Figure 3. Balkhi's outer treatments for OCD

Internal Treatments (Tx) - Cognitive and Psychological Therapies

Al-Balkhi categorises internal thoughts into two types: those stored in memory when calm, and those generated during the onset of obsessive symptoms.

1. The first mental technique revolves around challenging catastrophic thoughts by observing how others react to these imagined dangers. If these thoughts had any basis, others would also be alarmed, but since they are not, the sufferer can conclude that these thoughts are unfounded. The techniques mentioned, such as cognitive restructuring and reality testing, have consistently reduced symptoms in trials. [5][6]

2. Al-Balkhi's second technique focuses on understanding the origin of one's psychological symptoms. By recognising that these thoughts are part of one's natural temperament, much like a chronic physical ailment, the sufferer can come to accept and tolerate them. This is similar to modern approaches like covert desensitisation and mindfulness, which encourage acceptance of distressing thoughts without judgement.
3. In his third treatment, Al-Balkhi uses metaphors about natural laws to explain causality and refute the idea that life can end without an external or internal cause. This addresses cognitive distortions common in OCD sufferers and aligns with modern CBT techniques that focus on understanding causality and challenging distorted thinking.
4. Al-Balkhi's later techniques further reinforce the importance of cognitive restructuring and mind-body connections. He highlights the value of the therapeutic alliance, which has been shown to be associated with positive outcomes in psychotherapeutic treatment, [7] a key aspect of supportive psychotherapy and holistic treatment models.
5. The treatise focuses on positive visualisation and gratitude practice aligns, which aligns with modern therapeutic techniques shown to reduce OCD symptoms significantly. [8]
6. Finally, Al-Balkhi integrates the predominant belief systems of his time, such as religious-based teachings on healing, into his treatment plan, demonstrating a holistic approach and wider understanding of his readership. He also emphasises the importance of trust in the medical profession, acknowledging that a positive patient-doctor relationship can greatly enhance treatment outcomes, as has been well documented in recent studies, where the strength of this relationship has been said to be directly correlated with functional outcomes, and also correlates with an improved quality of life for patients. [9]

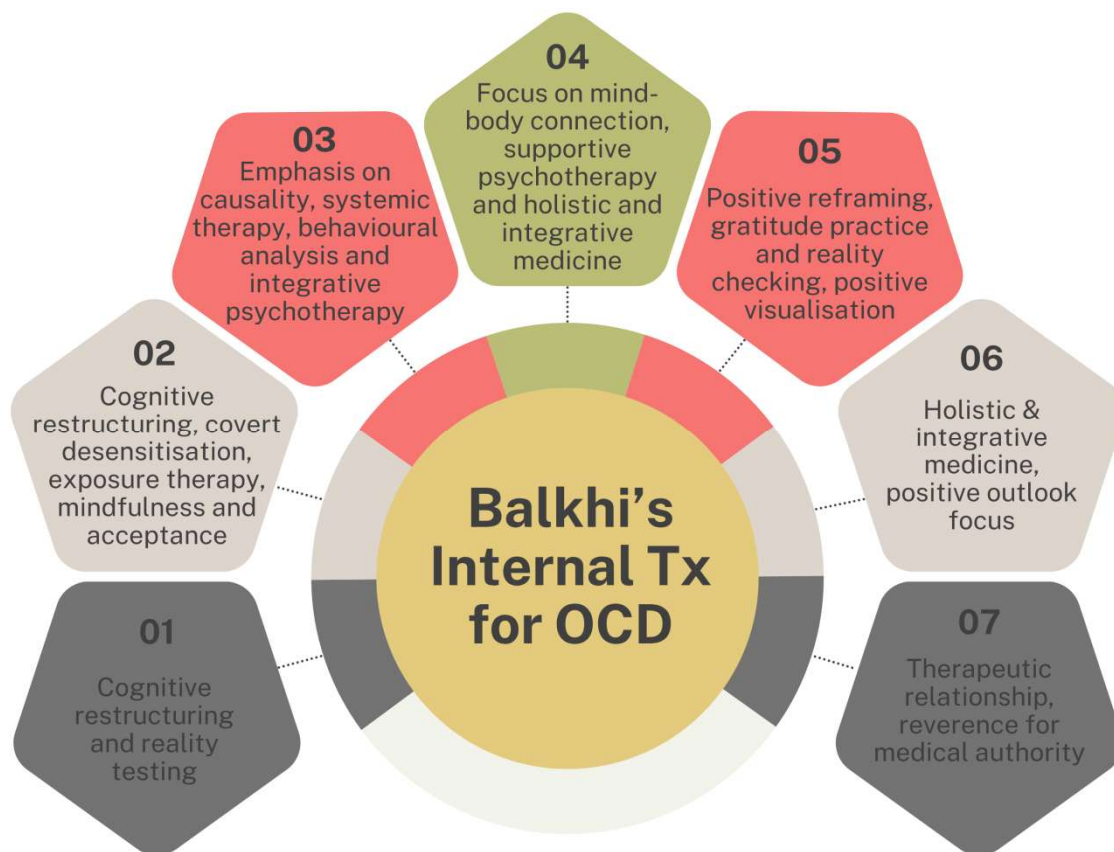


Figure 4. Balkhi's internal treatments for OCD

Conclusion

This study highlights how a modern understanding of OCD has been described in a historical 9th century text. This brings value to exploring other historical texts and developing an understanding of how new insights can be incorporated in clinical practice.

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Beyond Mufti Shafi's Fatwa: A CACDA study of the Responses of BSAMs to the NHSBT material on organ donation

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Abstract

This article is a summary of the author's doctoral research titled, "The NHS appeal for organ donation to British Muslims: A corpus-assisted critical discourse analysis (CACDA) of British South Asian Muslim Responses". The research examines the way British South Asian Muslims engage with organ donation, contrasting the prohibitive influence of Mufti Shafi Uthmani's (MSU) fatwa with Mufti Zubair Butt's (MZB) collaborative, context sensitive permissive ruling. Using corpus assisted critical discourse analysis, this study shows the way culturally embedded religious authority and Islamic ethical concepts can help the NHSBT design more trusted, faith conscious organ donation material.

Background

The problem addressed in the study titled 'The NHS appeal for organ donation to British Muslims: A corpus-assisted critical discourse analysis (CACDA) of British South Asian Muslim Responses' [1] - is the persistent shortage of organs for transplantation in the UK and the particular concerns and barriers that British South Asian Muslims (henceforth, BSAMs) have in relation to contributing to the donor pool. Despite the NHS Blood & Transplant service's efforts to promote organ donation via religiously framed material, the UK continued to face a chronic deficit of suitable donors which prompted the introduction of an opt-out system in Wales in 2013 and later in England in 2020. However, because religious uncertainty and cultural mistrust intersect with the policy change, the response of BSAMs to the promotional material remained to be investigated.

A central obstacle to reaching a unanimous Islamic verdict on organ donation is the plurality of fatwas (meaning Islamic legal opinions) on organ donation [2]. Early fatwas such as the Deobandi-based prohibition by Mufti Shafi Uthmani (1967) [3] continued to dominate community attitudes, at least within South Asian Muslims as a result of the fatwa a) reiterated and reinforced by Deobandi scholarly authorities and b) being valued culturally. On the other hand, more permissive rulings found in fatwas by Badawi (1995) [4] and the ECFR's (2000) [5] decision - which were issued by scholars perceived as external to the South Asian ulema network appear to have had limited impact. Nevertheless, the 2019 detailed opinion by Mufti Zubair Butt allowed organ donation but after only cardiac death, thereby challenging earlier permissive positions that accepted the neurological criteria. Moreover, the Wifaqul Ulama [6] issued a statement in 2020 opposing the opt-out scheme

just a few months prior the implementation of the law, which gave rise to further confusion and scepticism.

Beyond theological and jurisprudential disputes, the study notes several practical personal, social, and cultural concerns including a lack of clear, accessible religious guidance, fear of organ commodification, and insufficient community engagement during policy rollout. These factors together create a gap between legislative intent and actual donor registration among BSAMs. As such, without culturally and religiously sensitive communication grounded in transparent information and trusted Muslim community leaders, the organ shortage is likely to remain unresolved. As such, the study sought to investigate BSAM responses to the NHSBT material.

Building on Ali's interview study

An earlier study in 2016 was conducted by Ali [7] in which he sought to explore bioethical perspectives on organ transplantation. The data was gathered from open-ended interviews with three British Muftis. This qualitative research built on Rasheed and Padela's [8] call for ulema engagement, confirming that prior permissive fatwas such as Badawi's the ECFR's lacked traction among BSAMs. The poor reception of these fatwas appear not be entirely based on their contents and arguments but rather due to matters related to author credibility.

The three muftis emphasised that community trust is greater when the fatwa is issued by a scholar of the same cultural and religious affiliation. For instance, one interviewee is reported to have said:

"To be honest for the people from the Indian Sub-continent, the Majma'at al-Fiqhi al-Islami can say whatever they want, but if Mufti Taqi Uthmani says one thing the whole of the sub-continent is fine with it. Do you understand. So, it's who you have trust in your particular manhaj (religious affiliation)."

This insight from a British South Asian Mufti helps to understand the way eminent Deobandi scholars like Mufti Taqi overshadow international bodies like the IIFA. Statements against organ donation issued by such leading South Asian scholars or a lack of clear guidance from them on the matter reinforced reluctance and hesitation, perhaps inadvertently, within BSAMs to sign up to become organ donors. Ali's interviews elicited insights on opting-in as a social practice. To build on this study, this article focuses on the corpus-assisted critical discourse analysis of the interviews with 30 participants i.e. building on Ali's study ten-fold.

Corpus analysis

The Interviews Corpus (IC) is a collection of transcribed interview material that forms the empirical core of the research. The IC consists of 30 semi structured interviews with three main groups of participants: 18 ulama (including imams, alims and chaplains), 10 healthcare professionals (such as surgeons, GPs, and other health care professionals.) and two community members with personal experience of kidney donation or receipt. Notably, the five female participants that were interviewed contributed to 19% of the IC.

The corpus contains 216,200 words in total and was organised by interview questions so that the amount of discourse per question can be quantified. The four questions that generated the longest responses were related to:

1. Organ donation regulations
2. Islamic barriers/enablers
3. Reasons for low donor numbers in the South Asian community
4. The perceived need for BSAM donors

Responses to these four questions amount to approximately one-third of the IC, which highlights the centrality of these topics for the participants.

The IC was built between mid-December 2021 to early 2022 to capture the participants' responses to the NHS organ donation promotional material for the Muslim audience. Moreover, the IC serves three interrelated functions. Firstly, it provides first hand, culturally specific insight into the way the BSAM participants understand organ donation, including religious, ethical and practical dimensions. Secondly, the IC supplies a data set that can be compared with the NHSBT website [9] content through semantic analysis, revealing gaps between NHS messaging and community concerns. Thirdly, the IC reveals three semantic fields that were prominent, namely, anatomy and physiology (1.74% of the IC), religion (1%), and medicines and medical treatment (0.81%); these categories helped to identify two key themes: i) fatwas, and ii) seeking medical treatment.

Methodology

This study employed three interlocking critical discourse analysis (CDA) frameworks to examine the NHS organ donation material and the interview data: i) Fairclough's (1992) three-dimensional model [10], ii)

Reisigl & Wodak's (2000) Discourse Historical Approach (DHA) [11], and iii) van Leeuwen's (2008) social actor theory [12]. These frameworks were chosen because each one addresses a distinct analytical need. Fairclough's model supplied a systematic three level view: micro level linguistic detail, meso level discourse practices, and macro level sociocultural dynamics – these dimensions allow linguistic features, text consumption processes, and broader social change. For instance, i) textual analysis would help to see the way ideas were represented, ii) the discursive analysis would help to elaborate on reasons for a fatwa being endorsed or criticised through contextualisation, and iii) an analysis of the social practice would help to understand the economic, political, and cultural impact of these ideas and representations.

However, Fairclough's framework alone does not foreground cultural and historical dimensions; DHA addresses this gap by explicitly integrating content topic establishment, discursive strategies (such as nomination, predication, and argumentation), and linguistic means, thereby situating organ donation discourse within its religious, legal and historical context. As such, DHA contributes a historicised perspective that foregrounds the evolution of arguments, topoi and intertextual links (e.g., fatwas, Quranic verses) across the corpus, thereby revealing shifts from prohibition to conditional permissibility.

To capture power relations embedded in the representation of actors - such as the NHS, muftis, imams and community members, van Leeuwen's social actor theory was added as a tool for mapping nomination and predication patterns, which is essential for identifying the way imams, muftis, NHS institutions and community members are positioned as legitimate or delegitimised actors.

Alongside human intuition, corpus assisted CDA (CA CDA) supplies an objective, data driven baseline that mitigates criticisms of cherry picking, supports the detection of recurrent patterns across a sizable interview corpus, and enables reporting both dominant trends and notable exceptions [13].

Findings

The semantic field of religion made up 1% of the IC. Two important subthemes that were discussed in this category are i) the roles of fatwas and ii) intentions. The topic of fatwas, (which consisted 7% of the discussion on religion; the term fatwa occurring 157 times) included

discussions around the notion of the human body belonging to God. [14] [15]

Fatwa of Mufti Shafi Uthmani

Firstly, the late Grand Mufti of Pakistan Muhammad Shafi Uthmani (henceforth, MSU) was mentioned 20 times in the IC and was discussed by eight participants. The reference was in relation to MSU's 1967 fatwa that stated that:

- a) organ removal constitutes mutilation, which violates the sanctity of the body created by Allah
- b) delays the required swift burial
- c) based on the Calcutta Bone Trade scandal [16], organ donation can give rise to criminal organ trafficking.

The prohibition is framed through expert personal authority (the mufti's scholarly status) and theoretical rationalisation that the body 'belongs to Allah'. Overall, the discourse presents the act of organ retrieval as morally unacceptable.

MSU's ruling established the principle that extracting organs from a deceased person is prohibited, a stance that formed the dominant Deobandi position and was repeatedly cited as a barrier to organ donation in the BSAM community. This early Deobandi fatwa of MSU was required because the NHS organ donation programme created a legal and ethical gap for BSAMs. An analysis of the 119 occurrences of the term 'haram' in the IC revealed that the status quo in the BSAM community appeared to be that organ donation is prohibited. This finding is interdiscursively supported by the Wifaqul Ulama fatwa that was approved by 53 signatories.

However, the IC reveals that although the participants did not directly criticise MSU or his fatwa, those implementing his fatwa in the UK NHS context were criticised for several reasons. The criticism follows that MSU's fatwa was constructed through a traditional scholarly process but without evidence of collaboration with medical experts or reference to contemporary transplantation practice. Consequently, participants described it as a fatwa that appears to be legitimised mainly by authority of conformity rather than medical relevance. As such, applying the fatwa to the NHS context was viewed as a "barrier" and continuation of holding on to the decontextualised fatwa described as being "stuck at the haram". Moreover, MSU's fatwa does offer a practical solution to the problem at hand i.e. the shortage of transplantable organs and saving lives.

Contribution of Mufti Zubair Butt

The IC reveals 38 occurrences of the proper noun ‘Zubair’ mentioned by 12 participants, with all occurrences referring to Mufti Zubair Butt (henceforth, MZB), a British South Asian Mufti and a Deobandi graduate. MZB shared his opinion on organ donation because the organ shortage in the UK demanded a contextual reconsideration that could reconcile Islamic law with modern clinical practice. MZB’s work was built on a collaborative model involving Muslim doctors, sharia trained scholars, and evidence-based arguments; it invoked the topoi of theophilia and sincerity, framing donation as an act to please Allah when performed with righteous intention. MZB, argues that organ donation saves lives and is a charitable act that could be pleasing to Allah. This argument relies on impersonal authority (Qur’an and hadith) and moral evaluation that donation is good because it has the potential to save lives.

Reception and comparison

A further strand of evidence in favour of organ donation is the reception and positioning of MZB’s work itself. MZB’s work is titled ‘Organ donation and transplantation in Islam - An opinion’ [17]. However, 12 participants i.e. three quarters of interviewees - explicitly referred to MZB’s opinion as a “fatwa” (henceforth referred to accordingly), assigning it the formal authority associated with a religious ruling and distinguishing it from mere personal advice. This transformation suggests high regard for the fatwa. Moreover, all three NHS chaplain participants, who are key intermediaries between religious discourse and healthcare settings endorsed MZB’s fatwa. Further legitimacy for the fatwa comes from its production process - it is framed as the outcome of collaboration with recognised medical and religious experts, including an intensive care consultant, a physician trained in Sharia, and a member of the NHSBT organ donation strategy panel. Participants highlight the integration of Qur’anic and hadith evidence with contemporary medical research as a sign of scholarly rigour and balance, presenting the text as a logical, well-argued synthesis rather than a purely doctrinal pronouncement. Additionally, the IC reveals a call for “relevant” fatwas rather than “textbook” answers.

MZB’s clear, practical guidance is received positively whilst application of MSU’s fatwa is viewed as out of context leading to an overly restrictive ruling. The reception of the work by the participants was markedly positive: participants metaphorically described MZB’s work as a “game changer”, “tackling the problem”, “enabler”, “helpful”, and “well researched”. This

evaluation portrays the fatwa as an active, solution-oriented intervention that removes barriers and opens pathways to organ donation.

Overall, MZB’s name appeared more frequently and with higher evaluative scores than MSU’s fatwa (see Table 6.4. in the thesis [1]). Moreover, compared with MSU’s historically rooted prohibitive fatwa, MZB’s work is portrayed as a contemporary alternative and an ‘enabler’ that addresses the practical need for organ donation while preserving religious legitimacy.

Legitimation of organ donation

The IC reveals that organ donation is legitimised for BSAMs through an interplay of religious authority, moral reasoning, and culturally embedded discourse. Across the data, participants deploy a cluster of legitimation strategies: expert personal authority, impersonal authority, conformity to authority, moral evaluation, and theoretical rationalisation - to construct organ donation as religiously permissible as well as ethically commendable. At the centre of these strategies is MZB’s detailed ruling, which is repeatedly invoked as an authoritative fatwa that endorses organ donation and thus confers on the practice, formal scholarly legitimacy. Alongside this transformation, references to the Qur’an, hadith, and the wider fatwa literature function as forms of impersonal authority that supplies a scriptural and juristic basis that is not tied to any single scholar but instead to broader Islamic tradition.

Moral and theological arguments further reinforce legitimising organ donation. Participants consistently describe organ donation as good because it can save lives and as an act that is reasonably believed to be pleasing to Allah. Organ donation is then framed as a morally positive deed grounded in the topos of theophilia. This notion is complemented by theoretical rationalisation, whereby organ donation is linked to belief in qadar (divine will) and to an ontology in which outcomes lie ultimately with Allah. Intention (niyyah) emerges as a decisive criterion: irrespective of clinical outcomes, a sincere, altruistic intention to please Allah is portrayed as sufficient to render organ donation legitimate. Metaphors occurring in the IC such as ‘put trust in Allah’, ‘leaving matters in the hands of Allah’, and ‘sacrifice’ frame organ donation as an act of faith, devotion, and generosity, all which embeds the act within a recognisable framework of Islamic morality.

Corpus assisted critical discourse analysis corroborates these qualitative findings by identifying recurrent

semantic and evaluative patterns that support organ donation. Religious endorsement is visible in frequent references to fatwa and to categories of halal and haram, indicating that religious authorities are routinely invoked to grant permission. Words and phrases including amana, trust, hisab, and derivatives of the word responsibility occurred 161 times in the IC. As such, concepts of trust (amana) and moral responsibility surface repeatedly, positioning organ donation as a responsible act and foregrounding seeking medical treatment based on the topoi of moral duty. An analysis of social actors combined with the Discourse Historical Approach show that religious and institutional actors are best positioned to support organ donation by highlighting the religious permissibility, socially responsibility, and ethically necessity.

Overall, MZB' fatwa is perceived as one tailored specifically to the BSAM context, making it more applicable, in contrast to earlier rulings which appear distant from local realities.

Recommendations for the NHSBT

NHS Blood and Transplant (NHSBT) can operationalise these findings through a set of targeted content reforms. All material aimed for British Muslims could explicitly acknowledge religious uncertainty whilst allowing for an informed, faith conscious deliberation rather than persuasion. This entails opening pages with recognition of common Islamic concerns and structuring content around users questions. The NHSBT could also foreground the fatwa making process and scholarly diversity. The material can also dedicate sections to explain a) the actors who are involved in issuing rulings, b) reasons why legitimate disagreement exists, and c) explain the way evolving medical knowledge can shape juristic conclusions, which could result in multiple recognised positions without endorsing a single "Islamic view".

The focus could also shift from generic NHS idioms such as "gift of life" to Islamic ethical concepts such as niyyah, amanah, and dharura (necessity), with concise explanations that resonate with moral reasoning. Another closely related matter is the need to address concerns related to the sanctity of the body, through clear, non-technical explanations of post donation procedures, treatment of the deceased, and implications for burial. Additionally, the NHSBT can diversify its authoritative voices by integrating Muslim clinicians, local imams, and personal experiences, thereby grounding institutional messaging in relational trust.

Summary

The fatwa of Mufti Shafi Uthmani (MSU) and the work of Mufti Zubair Butt (MZB) were called upon because the British South Asian Muslims (BSAMs) lack explicit Qur'anic and hadith rulings on organ donation. As such, they turned to contemporary scholarly writings to resolve the theological gap. Compared with MSU's prohibitive stance, MZB's fatwa is presented as more socially acceptable, aligning organ donation with Islamic virtues of sacrifice and communal benefit. The cultural embeddedness and discursive framing of MZB's fatwa enhance its persuasive force. The fatwa is perceived as tailored specifically to the BSAM context, in contrast to earlier rulings which are viewed as distant from local realities.

Faith based metaphors that align organ donation with trust in Allah and with sacrificial generosity. Such metaphors reinforce the moral acceptability of organ donation, while recurring references to trust, responsibility, public benefit, and divine pleasure link religious obligation with public health goals. Taken together, the converging strands of religious endorsement, expert collaboration, and integration of Islamic sources with scientific evidence, positive evaluative framing, culturally resonant metaphors, and the centrality of sincere intention construct organ donation as both theologically acceptable and socially desirable. In this way, the discourse furnishes a framework for legitimising organ donation among British South Asian Muslims and for aligning religious sensitivities with the practical demands of organ donation policy.

Overall, the NHSBT material - rather than appearing to promote immediate sign up - can be to encourage discussion with consultation with family and scholars.

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Presence, Dignity, and Moral Responsibility: Ethical Reflections on Virtual Visiting in Intensive Care

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Background

Visiting restrictions in intensive care units (ICUs) during the COVID-19 pandemic led to widespread adoption of virtual visiting to maintain contact between critically ill patients, their families, and healthcare professionals.

Qualitative descriptive studies explored experiences of virtual visiting using semi-structured interviews with ICU clinicians and family members at Guy's and St Thomas' NHS Foundation Trust.

Data was analysed thematically to identify ethically salient experiences and moral tensions. This presentation reinterprets findings from the previously published study through the lens of ethics and professional identity.

Aim

To examine the moral implications of virtual visiting in ICU and consider how these insights can inform ethically grounded, culturally and faith-sensitive clinical practice beyond the original research setting.

Methods

Clinicians and family members who experienced virtual visiting during pandemic-related restrictions participated in semi-structured interviews.

Thematic analysis focused on ethically significant experiences related to decision-making, end-of-life care, relational dynamics, and professional responsibility.

Findings are revisited here as secondary dissemination, emphasising ethical meaning rather than methodological detail.

Results

Four key ethical themes were identified:

Theme	Title	Description
1	Presence vs Proximity	Virtual contact was perceived as meaningful yet, insufficient during deterioration or dying.
2	Relational Autonomy	Physical absence limited family participation in decision-making and increased clinicians' roles as moral intermediaries.
3	Moral Distress	Staff described discomfort at being sole physical witnesses to suffering and death.
4	Justice & Inequality	Shaped by digital literacy, language barriers, and cultural or faith-related needs.

Table 1. Four key ethical themes identified from thematic analysis of virtual visiting experiences in ICU.

Discussion

These findings suggest that while virtual visiting can preserve communication, it cannot fully replicate the relational and embodied dimensions of care, particularly at the end of life. The absence of families at the bedside altered traditional dynamics of shared decision-making and placed an increased moral burden on clinicians, who often became the only witnesses to patients' final moments.

The themes also highlight inequities in access and experience, underscoring the importance of culturally and contextually responsive approaches to care. Together, these insights emphasise that ethical ICU practice extends beyond communication to include presence, participation, and dignity.

Practice Implications

Although conducted in a single tertiary ICU, these ethical insights informed subsequent clinical practice in a different critical care setting. During my role as a junior clinical fellow at the Royal London Hospital, rapid community-supported provision of multiple Qur'an audio devices (Qur'an Cubes) was introduced to support spiritual comfort and dignity for Muslim patients particularly when family presence was limited.



Figure 1. Qur'an Cube audio device used to provide spiritual comfort for patients in critical care. Community-supported initiative funded through charitable donations.

This initiative demonstrates how ethical reflection on research findings can translate directly into faith-sensitive, dignified bedside care, bridging the gap between clinical necessity and spiritual needs.

Conclusion

Virtual visiting may support communication but cannot replace embodied family presence.

Ethical ICU care requires recognising families as moral participants and integrating culturally and spiritually responsive practices beyond pandemic contexts.

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Islamic Medical Ethics: A Legacy of Compassionate Care

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Keywords: *Islamic medical ethics; bioethics; autonomy; beneficence; non-maleficence; justice; Islamic history; Beauchamp and Childress*

Abstract

Introduction

Islamic medical ethics, rooted in the Qur'an, Hadith and Fiqh, has influenced healthcare for centuries, shaping patient care, professional conduct, and bioethical decision-making [1]. These principles parallel Beauchamp and Childress' Four Principles of Biomedical Ethics – Autonomy, Beneficence, Non-Maleficence and Justice – but are framed within a religious perspective emphasising moral and spiritual responsibilities alongside medical duty [2].

Historical Contributions

Islamic scholars pioneered ethical medical practice. Al-Ruhawi (C9th) wrote *Adab al-Tabib*, a foundational text highlighting physicians' duties to act with integrity, maintain confidentiality, and ensure patient welfare [3]. Ibn Sina (C10th-C11th) explored informed consent and ethical responsibilities in *The Canon of Medicine*, while Al-Zahrawi (C10th) advanced surgical ethics, stressing patient safety and professional accountability [3], contributions which shaped both Islamic and wider medical traditions, helping shape later developments in bioethics [3].

Islamic Framing of the Four Principles

Islamic medical ethics balances Autonomy – *Ikhtiyar* – with Divine Guidance. While patients may make healthcare decisions, choices are expected to align with religious and moral obligations [4]. Seeking treatment is encouraged when benefit is likely whereas euthanasia and assisted suicide remain prohibited. Beneficence (*Ihsan*) and Non-Maleficence (*La Darar*) underpin approaches to medical interventions, including organ donation [4]. Organ transplantation is generally permitted when life-saving, but post-mortem donation remains debated due to bodily preservation concerns [4]. Furthermore, Justice (*Adl*) ensures fairness in healthcare [5] and was historically embodied by *Bimaristans* (Islamic Hospitals) which provided free care centuries before modern public health systems [3].

Contemporary relevance

Islamic bioethics continues to influence debates on end-of-life care, genetic research, artificial intelligence in medicine, and resource allocation [6]. Institutions such as the Islamic Organisation for Medical Sciences collaborate alongside international bodies to integrate Islamic ethical perspectives into contemporary practice [6]. Recognising this legacy fosters culturally competent healthcare and supports ethically grounded care for diverse patient populations [6].

1. Introduction

Islamic medical ethics represents a rich, multifaceted tradition that has guided healthcare practice for over a millennium. Rooted in the Qur'an, Hadith, and scholarly disciplines of Fiqh and adab (conduct) these teachings have shaped how Muslim physicians approach patient care, professional conduct, and medical decision-making. Long before the classification of contemporary biomedical ethics, Muslim scholars, such as Al-Ruhawi, Ibn Sina (Avicenna), and Al-Zahrawi (Albucasis), engaged deeply with questions of morality, accountability, and patient rights in clinical settings. In Muslim-majority societies and for Muslim patients, ethical decision-making is significantly shaped by Islamic teachings, communal values, and theological concepts such as Ikhtiyar, Amaanah (trust) and Ihsan.

In modern clinical bioethics, Beauchamp and Childress' Four Principles – Autonomy, Beneficence, Non-maleficence, and Justice – have become the dominant framework in Western contexts. While these principles are presented as universally applicable, their interpretation and application often reflect underlying cultural and philosophical assumptions.

This paper aims to explore the parallels and divergences between the Four Principles of biomedical ethics and Islamic ethical traditions. By analysing historical sources, scriptural references, and jurisprudential insights, this paper will demonstrate how Islamic ethics offers a comprehensive and spiritually grounded approach to medical practice. It will also explore the contemporary relevance of these principles, particularly in areas such as end-of-life care, organ donation, and healthcare access.

This inquiry not only deepens our understanding of Islamic medical ethics, but contributes to a more inclusive and culturally competent practice of medicine, especially within multicultural and multi-faith healthcare environments.

2. Historical Foundations of Islamic Medical Ethics

Islamic medical ethics originated in the early centuries of Islam, particularly the Islamic Golden Age (8th–13th), when medicine and physicians' ethical responsibilities were deeply intertwined. Unlike in many early societies, Muslim scholars viewed medicine not solely a science, but a religious duty; a communal

obligation to preserve life, reduce suffering, and uphold dignity.

2.1 Foundational Texts and Scholars

One of the earliest comprehensive texts on medical ethics in the Islamic world is *Adab al-Tabib* – Conduct of a Physician – by Al-Ruhawi, written in the 9th. Often referred to as the first Islamic medical ethics manual, this text emphasises the physicians' character, moral responsibility, and accountability before both God and society [7]. Al-Ruhawi introduced mechanisms for peer review, physician licensing, and patient safety, concepts that predate similar developments in the West by centuries.

Later, Ibn Sina integrated medical science with ethical philosophy; his prominent text, *Canon of Medicine*, was taught across Europe for 600 years. His approach, rooted in Aristotelian reasoning and Islamic theology, advocated for moderation, compassion, and the moral integrity of the physician [8]. For Ibn Sina, healing was a God-given trust (amaanah) and the physician served as a caretaker of both body and soul.

Further, Al-Zahrawi, the father of modern surgery, insisted on ethical conduct during operations and emphasised training, humility, and accountability in medical practice [9].

2.2 The Role of Islamic Institutions

Bimaristans were early models of inclusive, ethical healthcare. They were publicly funded, offered free treatment regardless of religion, and implemented ethical codes that governed consent, patient confidentiality, and respectful care [3]. Patients with mental illness, for instance, were not only treated medically, but with spiritual and recreational therapies, too – centuries before the deinstitutionalisation movement in the West.

These institutions also trained physicians in both science and ethics, often requiring memorisation of the Hippocratic Oath alongside Qur'anic teachings. They served as physical embodiments of Islamic ethical values such as Adl, Ihsan, and Amaanah.

2.3 Ethical Guidelines in Fiqh

The development of Fiqh encouraged ethical conversation, particularly around issues of La Darar, Darurah (necessity), and Maslahah (public benefit).

Classical scholars like Al-Ghazali and Al-Shatibi articulated a framework known as the *Maqasid al-Shari'ah*– Objectives of Islamic Law – which prioritised the preservation of life, intellect, faith, and lineage – principles still invoked in contemporary bioethical debates[10].

These concepts informed foundational structured responses to medical dilemmas, ranging from infectious disease control to the permissibility of surgical procedures and post-mortem examinations. They also affirm that ethical medical practice in Islam is both a God-conscious and social responsibility.

3. Islamic Ethical Concepts and the Four Principles

The Four Principles–Autonomy, Beneficence, Non-maleficence, and Justice – have become a cornerstone of modern bioethics, offering a practical and adaptable framework for clinical decision-making. However, in Islamic contexts, these principles are not applied individually; they are interpreted through the perspectives of the Qur'an, Hadith, and Fiqh. This section explores how Islamic teachings resonate with, or offer distinct interpretations of each principle.

3.1 Autonomy and Ikhtiyar

Autonomy, as understood in Western bioethics, emphasises individual freedom and self-determination. While Islam values human agency (Ikhtiyar), it places autonomy within the boundaries of divine guidance and communal welfare [10]. The Qur'an frequently encourages individuals to apply reason to inform moral choices (Qur'an 18:29), with such choices expected to align with principles of Shari'ah and accountability to God.

In practice, a Muslim patient's decision-making rights about their own healthcare is thus recognised, but decisions must consider personal benefit in conjunction with religious duties and societal impact. Autonomy in Islam is relational, embedded in Amaanah and guided by consultation (Shura) – a concept also relevant in family-centred decision-making, particularly around end-of-life care.

A patient, for instance, may choose to continue treatment despite a poor prognosis if they believe it aligns with the Islamic principle of preserving life, even when Western

ethical frameworks might support withdrawal of care based on quality-of-life assessments.

3.2 Beneficence and Ihsan

Beneficence – the obligation to act in the best interest of the patient – is deeply embedded in the Islamic value of Ihsan, often translated as doing what is beautiful or excellent[12]. The Prophet Muhammad ﷺ said, "Allah has prescribed Ihsan in everything", including care for the sick.

Ihsanis reflected in centuries of Islamic-centred medical practice, where physicians were expected to treat all patients equally and without charge in institutions like in the Bimaristans [10]. Islamic beneficence is not limited to physical care but extends to spiritual and emotional support, holistically viewing the human being as a union of body and soul.

The emphasis on Ihsan encourages not only effective treatment but also kindness, dignity, and emotional sensitivity in the physician-patient relationship, paralleling modern calls for compassionate care and trauma-informed practice.

3.3 Non-Maleficence and La Darar

The principle of non-maleficence is mirrored in the maxim of Islamic legal theory – "*La darar wa la dirar*" – do not harm and do not reciprocate harm. This authentic hadith serves as a basis for medical rulings that weigh risk versus benefit.

For instance, procedures involving high risk may be considered impermissible unless they offer a significant likelihood of benefit. Scholars often invoke Darurah to justify certain medical interventions that would otherwise be forbidden, such as using prohibited substances in life-saving treatments. This principle guides Islamic bioethical positions on issues like experimental treatments, euthanasia, and abortion.

The Qur'an reinforces this idea: "And do not kill yourselves [or one another]. Indeed, Allah is to you ever Merciful" (Qur'an 4:29) highlighting the intrinsic value of human life and the imperative to avoid harm.

3.4 Justice and Adl

Adl is one of the central values in both Islamic theology and bioethics. The Qur'an states, "Indeed, Allah commands justice...(Qur'an 16:90)". In healthcare, this

translates to fair access to resources, fair distribution of care, and protecting vulnerable populations.

Historically, Bimaristans treated people regardless of race, religion, or financial status – a model that prefigured many modern public health systems [3]. Today, Islamic ethics continues to advocate for social justice in healthcare, especially underserved communities and for end-of-life decision-making.

The Maqasid al-Shari'ah also reflects justice in protecting life, intellect, lineage, property, and faith [10]. These objectives help frame discussions around organ transplantation, public health measures, and healthcare rationing.

3.5 The Role of Amaanah and Confidentiality

Although confidentiality is not one of the Four Principles per se, it is an essential ethical practice closely related to trust and respect for autonomy. In Islam, Amaanah is a spiritual and ethical obligation. The Prophet Muhammad ﷺ said, “The one who is not trustworthy has no faith.” (Musnad Ahmad, 12485).

This is reflected in healthcare with the duty to protect patients' privacy, maintain confidentiality, and disclose information only when medically or legally necessary. Islamic scholars generally agree that breaching confidentiality is only justified in cases where withholding information would result in harm, aligning with the Western principle of justified disclosure [11].

3.6 Synthesising Both Ethical Systems

While Beauchamp and Childress's principles are secular in origin, they often overlap significantly with Islamic ethical values. However, the source of moral authority differs in Islam; morality is grounded in divine revelation, whereas in secular bioethics, it is often human-made. Yet the practical outcomes – respecting the patient, reducing harm, doing good, and ensuring fairness – are strikingly similar. The richness of Islamic ethical tradition enhances the Four Principles by offering spiritual, legal, and communal dimensions. Integrating both frameworks may promote more inclusive bioethical models that reflect the diverse moral landscapes of contemporary healthcare.

4. Contemporary Applications

As healthcare becomes increasingly globalised and multicultural, understanding how Islamic medical ethics

applies contemporarily is crucial. Muslim patients and healthcare professionals navigate ethical dilemmas shaped not only by clinical guidelines but also deeply held religious beliefs. In this context, the relationship between Islamic ethical frameworks and modern bioethics offers a robust foundation for compassionate and principled care.

4.1 End-of-Life Care and Do Not Attempt Resuscitation (DNAR)

Decisions regarding end-of-life care often raise ethical tensions between preserving life and alleviating suffering. In Islam, life is sacred (Qur'an 5:32) but death is also seen as a transition, not an end. Physicians are not required to prolong life at all costs, particularly when treatment becomes futile. Islamic rulings permit the withdrawal or withholding of treatment if expert consensus confirms its futility, provided the intention is not to hasten death [13].

For example, Do Not Attempt Resuscitation (DNAR) orders are generally acceptable in Islam if resuscitation is unlikely to be effective and only prolongs suffering. The Islamic principle of La Darar is invoked to justify this decision, while Ikhtiyar supports involving patients and families in these discussions.

4.2 Organ Donation and Transplant Ethics

Organ donation is a further area wherein Islamic ethics engages with biomedical ethical principles. While some early scholars prohibited organ transplantation due to concerns over bodily integrity after death, contemporary juristic councils – including the International Islamic Fiqh Academy – have issued *fatwas* (Formal ruling on a point of Islamic law given by a qualified legal scholar in Islamic jurisprudence.) permitting both living and deceased donation under conditions of consent and absence of coercion [14].

This ruling aligns with Beneficence and saving lives (Qur'an 5:32) but is balanced by Amaanah—the belief that the body is entrusted by God, not absolute property. This perspective also influences views on brain death as a criterion for death, which remains debated in Islamic circles.

These cases illustrate the tension between evolving medical definitions and fixed theological principles, requiring ongoing dialogue between medical professionals and scholars.

4.3 Reproductive Ethics and Assisted Fertility

Islam strongly encourages procreation within the bounds of marriage but permits assisted reproductive technologies (ART) such as IVF when involving only the husband and wife [15]. The use of donor sperm, eggs, or surrogacy is largely prohibited due to concerns about *nasab* (lineage) and preservation of family structures – central goals of Maqasid al-Shari'ah[16].

This framework respects Autonomy and Beneficence but places limits wherein technologies conflict with religious teachings. Muslim couples seeking ART often require counselling that integrates both medical and religious advice, and physicians should be aware of these boundaries to provide culturally sensitive care.

4.4 Mental Health and Spiritual Responsibility

Mental health remains under-discussed in many Muslim communities, partly due to stigma and theological misunderstandings. However, Islamic teachings affirm the spiritual and emotional dimensions of well-being; the Prophet Muhammad ﷺ exhibited empathy, emotional resilience, and seeking help in times of distress[17].

In contemporary clinical settings, addressing mental health ethically involves recognising the holistic Islamic model of the human being, encompassing mind, body, and soul, ensuring Amaanah, informed consent Ikhtiyar, and therapeutic Ihsan all align with Islamic principles. In some cases, incorporating chaplaincy, Qur'anic therapy, or spiritual counselling can enhance the therapeutic alignment.

4.5 Muslim Healthcare Professionals: Ethical Navigation

Muslim healthcare workers often face dual obligations – to their profession and to their faith. For instance, a Muslim doctor maybe asked to participate in abortion services, raising concerns about moral complicity. Islamic ethics allows conscientious objection where participation conflicts with core beliefs, provided patients are not abandoned or harmed[18].

Professional guidelines in the UK (e.g. GMC) support such conscientious objection if referrals are made to non-objecting colleagues. This balance reflects Adl and La Darar which underpin both Islamic and secular ethics.

Healthcare systems must ensure safe environments where Muslim professionals can uphold both ethical and

religious commitments without discrimination – fostering inclusion and professional harmony.

4.6 Towards a Culturally Competent Bioethics

The integration of Islamic ethics into clinical practice is extraneous to creating separate standards but pertains to enhancing inclusivity and patient-centred care. Recognising that ethical reasoning can be both faith-informed and evidence-based permits Muslim patients and professionals to participate meaningfully in ethical discussions.

Clinicians who understand Islamic moral reasoning – such as the concept of Maslahah or Darurah – can better engage with Muslim patients during consent, end-of-life decisions, or complex care planning. This approach strengthens trust, reduces disparities, and affirms that ethics is not a one-size-fits-all model.

5. Conclusion

Islamic medical ethics provides a comprehensive ethical framework that integrates spiritual accountability, communal responsibility, and clinical decision-making. Although modern biomedical ethics is commonly structured around the principles of Autonomy, Beneficence, Non-maleficence, and Justice, Islamic ethical traditions demonstrate that these values have long existed within a faith-based moral framework grounded in the Qur'an, Hadith, and Islamic jurisprudence. The interaction between these approaches highlights both shared ethical priorities and important differences in the understanding of moral authority, patient autonomy, and social responsibility.

Through concepts such as Ikhtiyar, Ihsan, La Darar, and Adl, Islamic ethics accommodates a values-based approach to patient care that respects human dignity, religious belief, and social responsibility. The principle of Amaanah, especially in relation to confidentiality and the sacred trust of the body, reinforces a moral consciousness that transcends the clinical act and engages the caregiver's spiritual accountability.

Contemporary discussions surrounding organ donation, reproductive technologies, mental health, and end-of-life decisions evince Islamic ethics as an evolving tradition, not static or outdated. Jurists and scholars continue to issue fatwas and ethical perspective concerning new medical developments, often through mechanisms like Maslahah and Darurah, ensuring the applicability of Shari'ah in modern clinical contexts.

Importantly, Islamic medical ethics provides a moral compass not only for Muslim patients but also Muslim healthcare professionals, as well as healthcare professionals treating Muslim patients, each of whom must adapt professional duties with faith-based values. As healthcare systems become more culturally diverse, the integration of Islamic ethical perspectives into medical practice, training, and policy is essential for ensuring fair and culturally competent care.

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Principle	Islamic Concept	Qur'an	Hadith	Fiqh Perspective
Autonomy (Ikhtiyar)	Free will in decision-making guided by religious principles	"There is no compulsion in religion..." (Qur'an 2:256)	Prophet Muhammad (PBUH) said, "A person who seeks treatment, Allah provides a cure." (Sunan Abu Dawood 3855)	Patients may refuse treatment, but lifesaving interventions are encouraged unless explicitly forbidden.
Beneficence (Ihsan)	Acting in the patient's best interest, kindness in care	"And do good; indeed, Allah loves the doers of good." (Qur'an 2:195)	"The most beloved people to Allah are those who bring the most benefit to others." (Al-Mu'jam Al-Awsat 6192)	Muslim physicians are required to prioritise patient welfare and ethical practice.
Non-maleficence (La Darar)	Avoidance of harm to the patient	"And do not kill the soul which Allah has forbidden, except by right." (Qur'an 17:33)	"There should be neither harming nor reciprocating harm." (Sunan Ibn Majah 2340)	Harmful treatments should be avoided unless benefits outweigh risks (e.g., necessity in organ donation).
Justice (Adl)	Fair distribution of healthcare and equity in treatment	"Indeed, Allah commands justice and good conduct..." (Qur'an 16:90)	The Prophet (PBUH) established free healthcare in Bimaristans, ensuring justice in medical care ⁷ .	Healthcare should be available to all, as seen in historical Islamic hospitals (Bimaristans).

Supporting International Medical Graduates Through AI-Enabled Clinical Workflow and Learning Support in UK Primary Care

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Background

International Medical Graduates (IMGs) are a key component of the NHS workforce, particularly in primary care, but often face challenges adapting to UK clinical systems, workflows, and guideline-based practice. Umbil is an AI-enabled workflow and learning support platform designed to provide rapid access to UK guideline-aligned information while supporting workplace learning and clinical workflow tasks.

Clinical question



Umbil

Answer + learning capture

CPD/Reflection

Figure 1: Simplified Umbil Workflow demonstrating conversion of clinical questions into workplace learning and reflective practice.



QR code for Umbil AI

Aim:

To evaluate the early feasibility and clinician engagement of an AI-enabled workflow and learning support platform that supports clinicians, including IMGs, in UK primary care

Methods:

An early feasibility evaluation was conducted using real-world usage data from Umbil users across UK clinical settings.

The platform provides rapid access to trusted UK guidance-aligned information, alongside features such as clinical question answering, referral support, safety-netting assistance, patient communication tools, and GMC-linked learning capture. Engagement metrics, including user registrations, clinical queries, learning capture events, workflow tool use, and website traffic, were analysed during the initial evaluation period.

Results:

The platform demonstrated substantial clinician engagement and early commercial traction. Total AI infrastructure costs were approximately £18.37. This suggests strong early clinician uptake and demonstrates the feasibility of delivering AI-enabled workflow and learning support at a low operational cost.

Metric	Value
Registered clinicians	818
Clinical queries submitted	>28,000
Learning events captured	957
Website visitors (previous 30 days)	2,414
Paying subscribers	First paying subscribers secured
AI infrastructure cost	Approximately £18.37

Table 1: Early clinical engagement and workflow utilisation metrics from the Umbil platform evaluation.

Discussion:

The engagement metrics suggest strong early clinician uptake, with 818 registered clinicians and more than 28,000 clinical queries indicating sustained real-world use. For IMGs, rapid access to UK guideline-aligned information may help support transition into UK primary care by reducing uncertainty and improving familiarity with local clinical processes. The capture of workplace learning events suggests potential to integrate clinical support with professional development. The low infrastructure cost observed during the evaluation period suggests that AI enabled workflow support may be scalable across a wider healthcare workforce.

Limitations include the observational nature of the evaluation and the absence of formal education or clinical outcome measures. Although the platform was designed to support clinicians, including IMGs, IMG specific outcomes were not evaluated in this early feasibility study.

Conclusion:

Early real-world evaluation demonstrated meaningful clinician engagement, successful early adoption, and low operational costs. These findings support the feasibility of AI-enabled workflow and learning support within UK primary care and justify further evaluation of educational and clinical outcomes.

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Elderly Care in the History of Islamic Medicine: Ethical Foundations, Institutions, and Clinical Thought

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Abstract

The care of the elderly occupies a central yet underexplored place in the history of Islamic medicine. While modern healthcare systems increasingly grapple with ageing populations and case of dementia, classical Islamic civilisation developed integrated models of geriatric and psychogeriatric care grounded in ethical, social, and medical principles. This article examines historiographical gaps, theological foundations, institutional structures, and clinical insights, particularly the contributions of AbūZayd al-Balkhī, highlighting their relevance for contemporary medicine.

1. Introduction:

A persistent feature in many Western narratives of the history of science and medicine is a discontinuity between classical antiquity and the early modern period. Standard accounts often move from the achievements of Greek and Roman physicians directly to the European Renaissance, leaving a historiographical gap spanning approximately a millennium (c. 600–1600 CE), frequently characterised as the “Dark Ages.” This framing, however, reflects a Eurocentric perspective rather than a global historical reality. While parts of Western Europe experienced institutional and intellectual contraction, the Islamic world witnessed a remarkable flourishing of scientific and medical scholarship, supported by translation movements, scholarly patronage, and the development of hospitals and centres of learning (Saliba, 2007; Pormann & Savage-Smith, 2007).

Far from representing a period of stagnation, this era, often referred to as the Islamic Golden Age, was crucial for the preservation and expansion of medical knowledge. Scholars such as Ibn Sina and Al-Razi not only translated Greek medical works but critically engaged with them, producing original contributions in clinical medicine, pharmacology, and medical theory. Much of Greco-Roman medical knowledge survived precisely because it was transmitted, systematised, and expanded within the Islamic intellectual tradition before

being reintroduced into Europe through Latin translations (Gutas, 1998; Montgomery, 2000).

Within this broader intellectual context, Islamic civilisation developed a distinctive and sophisticated approach to ageing and elderly care. Ageing was understood not merely as biological decline but as a meaningful stage of life requiring adapted clinical care, ethical sensitivity, and social responsibility. Physicians recognised age-related vulnerability, while institutions such as bīmāristāns provided organised, universal care for the chronically ill and elderly centuries before the emergence of modern geriatric medicine (Ragab, 2015). Among the most significant contributors to this tradition is Abu Zayd al-Balkhi, whose integration of psychological and physical health provides a foundational model for what would now be termed psychogeriatrics.

2. Ethical and Theological Foundations of Elderly Care:

Islamic teachings establish a robust moral framework for the care of older adults. The Qur’an affirms inherent human dignity (Qur’an 17:70) and commands compassion and humility toward ageing parents (Qur’an 17:23–24; 31:14), framing elder care as a religious and ethical obligation (Sachedina, 2009).

Prophetic traditions reinforce this ethos by emphasising respect for elders and mercy toward the vulnerable. These teachings ensured that ageing and cognitive decline did not diminish moral worth but instead intensified the obligation of care (Badri, 2000).

3. Social and Institutional Models of Care:

Islamic societies operationalised these ethical principles through a multi-layered system of care:

- Family-based care, rooted in filial responsibility
- Community obligation (fardkifāyah) toward vulnerable elders
- Charitable endowments (waqf) supporting housing and care services
- Hospitals (bīmāristāns) providing free and universal treatment

These institutions integrated physical, psychological, and spiritual care, representing one of the earliest holistic healthcare systems (Ragab, 2015).

4. Clinical Perspectives on Ageing in Classical Islamic Medicine:

Classical physicians such as Ibn Sina and Al-Razi identified ageing as a distinct physiological stage requiring tailored intervention.

In *The Canon of Medicine*, Ibn Sina described diminished vitality, increased fragility, and the need for dietary and environmental modifications. Al-Razi highlighted the interaction between mental and physical illness and advocated humane, individualised care (Dols, 1992).

These contributions represent an early form of geriatric medicine grounded in clinical observation and therapeutic adaptation.

5. Ab Zayd al-Balkh and the Integration of Physical and Psychological Care:

A major development in Islamic medical thought emerges in the work of Abu Zayd al-Balkhi. In *Masalih al-Abdan wa al-Anfus* (Sustenance for Bodies and Psyche), he articulated a comprehensive theory of health integrating body and soul.

He writes:

“The human being is composed of both body and soul, and neither can remain sound without the well-being of the other.”

5.1 Ageing as a Natural Stage:

Al-Balkhī recognised old age as a stage characterised by declining physical strength and reduced resilience. He advised moderation in lifestyle and avoidance of excessive exertion.

5.2 Diet and Physical Health:

He recommended lighter, easily digestible foods and reduced intake, acknowledging the weakening of digestion with age. This reflects an early preventative approach to geriatric care.

5.3 Movement and Function:

Gentle physical activity was encouraged to preserve strength without causing harm:

“Moderate activity strengthens the body and helps preserve health.”

5.4 Psychological and Emotional Health:

Al-Balkhī emphasised that sadness, anxiety, and loneliness accelerate physical decline. Emotional well-being was therefore central to maintaining health in old age.

5.5 Social Care:

He highlighted the importance of companionship and positive social interaction, recognising their therapeutic value in maintaining mental health.

5.6 Holistic Integration:

His core principle, that body and soul are interdependent, anticipates the modern biopsychosocial model and establishes one of the earliest frameworks for psychogeriatrics.

6. Psychogeriatrics and Cognitive Decline:

Islamic medical literature described cognitive decline using terms such as *al-kharaf*, recognising it as a medical condition rather than a moral failing (Dols, 1992).

The Qur'an (16:70) acknowledges cognitive regression in old age, reinforcing a non-stigmatising understanding of dementia and related conditions.

7. Legal and Ethical Frameworks: Capacity and Guardianship:

Islamic jurisprudence developed nuanced models of decision-making capacity (ahliyyah), recognising it as gradual and domain-specific (Hallaq, 2009).

Guardianship (wilāyah) functioned as a protective mechanism, ensuring the welfare of cognitively impaired individuals while preserving their dignity and rights (Sachedina, 2009).

8. Spiritual and Psychological Dimensions of Care:

Spiritual care formed an integral part of medical practice. Compassionate communication, emotional reassurance, and preservation of dignity were emphasised, particularly for vulnerable elderly individuals.

9. Contemporary Relevance:

The Islamic historical model, particularly through figures such as al-Balkhī, offers valuable insights for modern healthcare:

- Integration of physical, psychological, and spiritual care
- Early recognition of geriatric and psychogeriatric needs
- Preventative and person-centred approaches
- Ethical frameworks for dementia and capacity
- Emphasis on dignity and non-stigmatisation

10. Conclusion:

The Islamic medical tradition presents a deeply integrated model of elderly care that combines clinical expertise with ethical responsibility. The contributions of AbūZayd al-Balkhī are especially significant in demonstrating an early synthesis of physical and psychological medicine.

As modern healthcare systems confront the challenges of ageing populations, this tradition offers enduring principles for holistic, compassionate, and ethically grounded care.

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Integrating Lifestyle Medicine, Preventive Health, and Holistic Care - The Role of the CaRing4CuRe Startup in Community- Based Health Promotion

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Keywords: Lifestyle Medicine; Preventive Health; Holistic Health; Community Health Promotion; Health Education; Behaviour Change; Digital Health; Social Entrepreneurship; Non-Communicable Diseases; Wellbeing

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Background

Lifestyle Medicine and Preventive Health are increasingly recognised as essential approaches to address:

- Non-communicable diseases (NCDs)
- Mental health challenges
- Health inequalities

These approaches focus on evidence-based lifestyle interventions, including:

- Nutrition
- Physical activity
- Stress management
- Sleep optimisation
- Social connectedness

A holistic health perspective integrates physical, mental, emotional, and social wellbeing.

AIM / OBJECTIVE

To explore how a community-based startup, CaRing4CuRe, implements Lifestyle Medicine and Holistic Health principles to promote preventive and equitable health outcomes.

METHOD / APPROACH

- Case study of CaRing4CuRe startup
- Community-based, participatory health model
- Theory of Change framework applied

INTERVENTIONS (CORE ACTIVITIES):

- Community health awareness programmes
- Lifestyle education workshops
- Digital health outreach
- Preventive health screening
- Culturally sensitive health initiatives

MODEL OF CARE: THE CARING4CURE THEORY OF CHANGE

The CaRing4CuRe model integrates:

- 1. Preventive Screening**
Early detection and risk assessment
- 2. Nutrition & Physical Activity Guidance**
Healthy eating and active living
- 3. Mental Wellbeing Support**
Stress management, mindfulness, and emotional support
- 4. Family-Centred Health Promotion**
Empowering families for lifelong wellbeing

Central Focus

Holistic, person-centred preventive care with emphasis on:

- Behaviour change
- Self-efficacy
- Resilience
- Long-term wellbeing

CaRing4CuRe THEORY OF CHANGE MODEL



Figure 1. CaRing4CuRe Theory of Change Model

COMMUNITY-BASED INTERVENTION FRAMEWORK :

Partnerships

Healthcare professionals, academic institutions, and community organisations

Community Engagement

Inclusive, participatory, and culturally sensitive approaches

Health Education

Awareness, capacity building, and lifestyle education

Behaviour Change Support

Coaching, counselling, and follow-up support

Improved Outcomes

Better health, wellbeing, and reduced disease risk

Bridging Clinical Care, Public Health, and Everyday Lives

COMMUNITY-BASED INTERVENTION FRAMEWORK

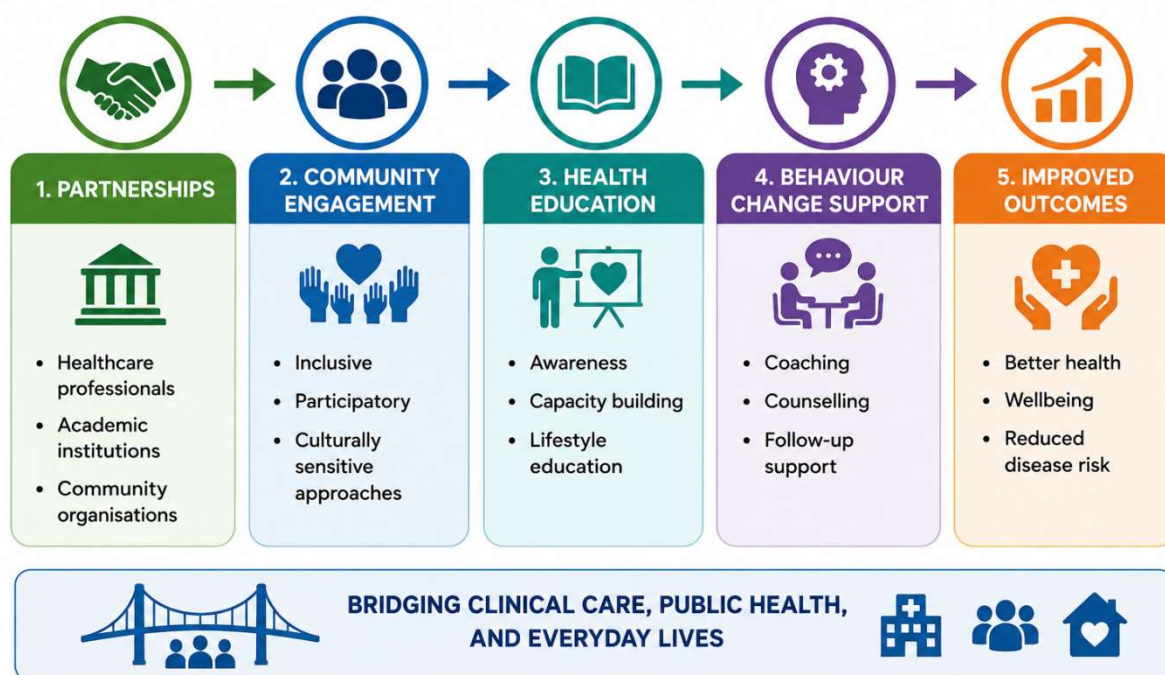


Figure 2. Community-Based Intervention Framework



Figure 3. Lifestyle Medicine Components

KEY FINDINGS:

- Bridges gaps between clinical care and community
- Health
- Addresses upstream determinants of health
- Promotes long-term wellbeing and prevention
- Enhances community engagement and empowerment

LIFESTYLE MEDICINE COMPONENTS:

The core pillars of Lifestyle Medicine include:

- Healthy Eating
- Physical Activity
- Restorative Sleep
- Stress Management
- Social Connection

SIGNIFICANCE:

- Demonstrates the role of social entrepreneurship in healthcare
- Supports sustainable and equitable health promotion
- Complements existing public health and healthcare systems
- Empowers communities to take charge of their health

CONCLUSION

Startup-led innovations like CaRing4CuRe provide scalable, community-driven solutions for integrating:

- Lifestyle Medicine
- Preventive Health
- Holistic Care

These approaches contribute to reducing disease burden and improving population health through inclusive, preventive, and holistic strategies implemented at the community level.

“Care today, prevention for tomorrow, wellbeing for life.” – CaRing4CuRe

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Faith and Culturally-Aware Women's Health Education: Insights from Community and Healthcare Engagement

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Background

Women from ethnically diverse communities frequently face barriers to preventative healthcare, including stigma, low symptom awareness, and limited access to culturally relevant health information.^[1,3,4] Faith and community settings may provide trusted environments for delivering health education and improving engagement with healthcare services, particularly among underserved populations.^[3,4]

- Low awareness of NHS prevention services in the community.^[6]
- Core20PLUS5 highlights the need to reduce health inequalities.^[2]
- Closing the women's health gap represents a \$1 trillion global opportunity.^[5]

The project explored how culturally-aware women's health education can improve awareness, trust, and healthcare engagement among women from community and faith-based settings.

Methods

ThriveHer.Clinic delivered culturally and faith-aware educational initiatives between August 2025 and February 2026.

Activities included:

- Community workshop at Oadby Community Centre (n = 50)

- Women's health workshop at Al-Falah Mosque, Birmingham (n = 25)
- Online Ramadan Roots women's health webinar (n = 110)
- Healthcare Professional (HCP) webinar in collaboration with MAPAS, UK & USA (n ≈ 30)

Evaluation included pre/post surveys and a "Your Voice Matters" community needs assessment survey.^[6] Approximately 280 women participated across all activities.

Results

Key findings from surveys and feedback included:

- 83.3% planned to make a health behaviour change after sessions.
- 80.6% most requested feature: Islamic health perspective.
- 54.8% requested culturally sensitive health information.
- 100% wanted health checks offered during sessions.
- 56.5% reported feeling dismissed or misunderstood by a healthcare professional.
- Participants reported increased confidence in recognising red-flag symptoms after workshops.
- Awareness of NHS health checks improved following educational sessions.

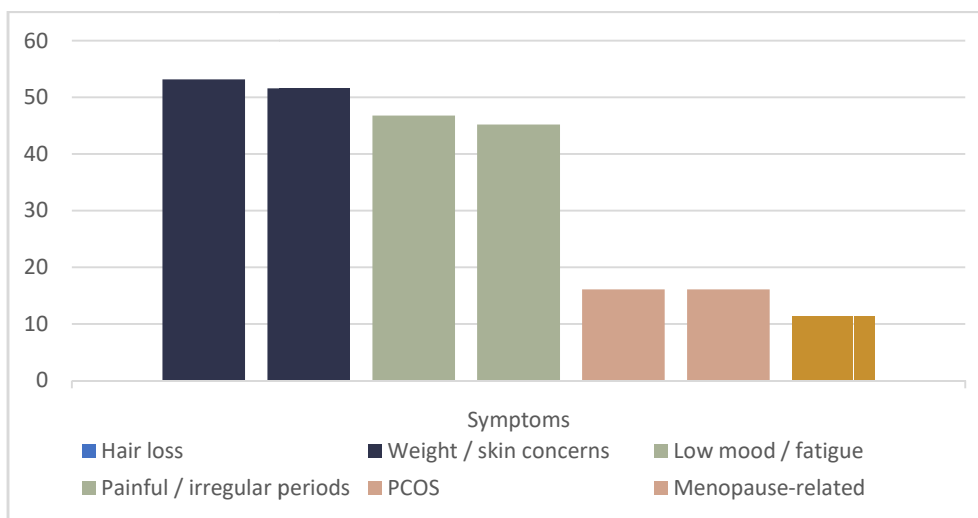


Figure 1. Symptom burden reported in the community survey (n=62)

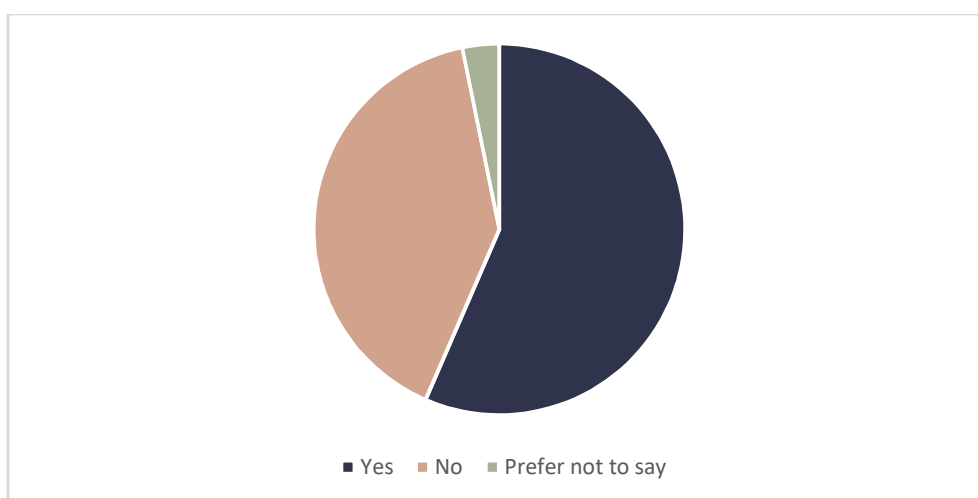


Figure 2. Proportion who felt dismissed or misunderstood by a health professional (n=62)

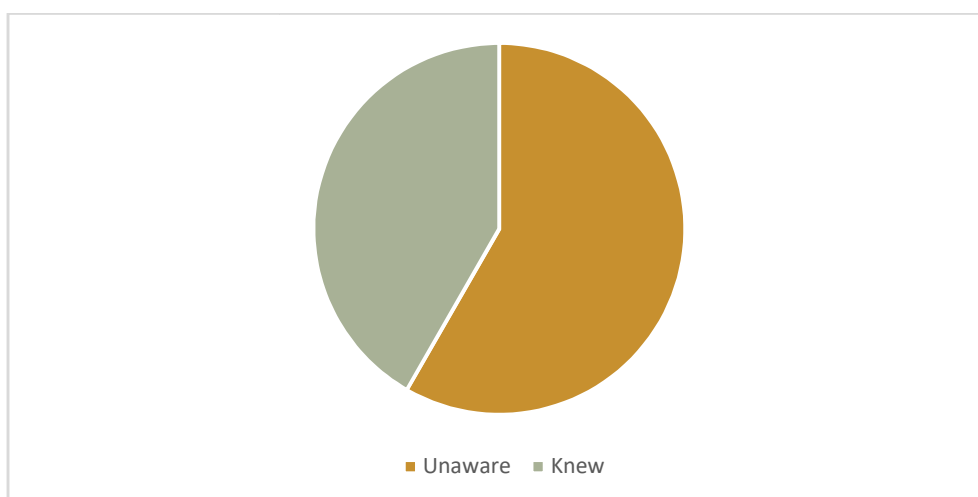


Figure 3. Awareness of NHS Health Checks before the session (n=12)

Community Voices

Selected responses from post-session surveys: ^[7,8]

“Women’s health concerns are too often dismissed.”
“Listen to the patient better.”
“Training needed for culturally appropriate care.”
“Do not dismiss Muslim women – hear them.”
“Equal access to funding for awareness and health promotion is needed.”

Healthcare Professional Webinar Feedback

Participants described speakers as

- “Competent, credible and confident in delivery”.
- “Very informative webinar – topics directly applicable to clinical practice”.
- “More webinars to provide up-to-date evidence-based practice guidance.”

Service Demand

Requested services and support included:

- Islamic health perspectives(80.6%)
- Doctor-led guidance (64.5%)
- One-to-one consultations (64.5%)
- Mobile health platforms (56.5%)
- Culturally sensitive information (54.8%)

Key Message

Culturally and faith-aware women’s health education improves trust, awareness, and engagement with preventative healthcare in underserved women. The findings highlight both an awareness gap regarding NHS services and a trust gap related to dismissal and lack of cultural relevance.

NHS Relevance

The findings support NHS Core20PLUS5 priorities by:

- Improving prevention engagement. ^[1,3,4]
- Highlighting the NHS Health Check awareness gap. ^[6,8]
- Supporting future models combining community education with health checks and digital follow-up.
- Providing scalable community-based models for preventive healthcare delivery.

Future Directions

Future recommendations include:

- Scaling the model through community and digital delivery.
- Integrating simple health checks into future workshops.
- Evaluating long-term impact on service awareness and health behaviours.
- Supporting future grant and NHS partnership applications using this evidence base.

Conclusion

These findings suggest that culturally and faith-aware women’s health education delivered through community, faith, and professional networks is feasible, well-received, and may support behaviour change, knowledge dissemination, and awareness of preventative healthcare pathways among underserved women.

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Pilot Study on Predictors of Vaccine Hesitancy among Muslim-Americans: The Roles of Trust, Religiosity, and Political Beliefs

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Keywords: vaccine hesitancy; vaccines; Muslim health; Muslim-American

Abstract

Background: Vaccine hesitancy hinders the management of preventable illnesses. Currently, there are gaps in public health research on vaccine hesitancy among Muslim-Americans. There are few studies that examine Muslim-Americans in multi-faith countries, like the U.S. and Canada.

Objective: We aimed to understand the extent of vaccine hesitancy among Muslim-Americans, as well as what factors contributed to their health care decision making for vaccines.

Method: Participants were recruited through Facebook group posts. Seventy-three participants completed the online Qualtrics survey. Sixty-five participants met the inclusion criteria of living in the United States for at least five years, be eighteen years of age and identify as Muslim. Participants' responses were collapsed into the following belief scores to quantify subjective opinions from the survey: political leaning, religiosity, trust in public institutions, and vaccine hesitancy.

Results: 71.4% were female, with an average age of 32 years. 80.6% were Asian, 9.7% were white or Caucasian, 3.2% were Middle Eastern, 3.2% were mixed race, and 1.6% were Black or African American. 51.6% attained a graduate or doctoral degree. 79.0% identified as Sunni, 9.7% were Shia, 6.5% were Sufi, and 4.8% did not associate with a sect. 96.8% received at least one dose of the COVID-19 vaccine. Participants who were older in age, had attained higher levels of education, employed, unmarried, and identified with the Sunni sect were less vaccine hesitant. Most participants (36.5%) were more likely to accept a vaccine if it had no reported safety issues. Participants were more likely to be hesitant about vaccines with safety concerns or poor efficacy.

Conclusions: Results both align with and contradict previous studies conducted in Muslim majority and multi-faith countries. This study found an association between Islamic sect and attitudes towards vaccines. While this is a unique finding, it is exploratory. Follow up studies are necessary to gauge a larger, more diverse population

of Muslim-Americans. Based on this study's findings, healthcare professionals can better promote vaccines by alleviating their patient's trust in public institutions. Clinicians must understand their Muslim patients' fears about vaccination and address misconceptions. Public health institutions must engage in culturally relevant community-level advocacy and education. Mistrust by Muslim-Americans stems from a history of systemic discrimination, Islamophobia, and socioeconomic barriers to adequate healthcare. Thus, solutions must emphasize improving healthcare access for Muslim-Americans and helping them feel reassured about the healthcare system at large. We suggest incorporating translation services for better communication. We recommend that clinicians emphasize positive attributes of vaccines that align with accepted beliefs within Islam, such as protecting the community.

Background

Vaccine hesitancy refers to delaying vaccination, questioning their efficacy or expressing doubt in their safety [1]. Vaccine refusal is the complete rejection of vaccines [1]. Anti-vaccination sentiments are known to increase the proliferation and death rates of preventable illnesses, while also putting immunocompromised and nonvaccinated populations at risk. There have been studies, like those by Hossain et al. [2] and Sallam et al. in 2021 [3], that were conducted in Muslim majority countries. However, there is still no consensus on Muslim communities as a whole group in multi-faith societies, like the United States. Such studies focus on Muslim-American subgroups. For example, Hearld&Budhwani [4] studied Muslim-American women. Due to this research gap, our study aimed to understand Muslim-American vaccination trends. We hypothesized that Muslim-Americans had similar vaccination trends and factors for vaccine hesitancy as the larger American populace.

Vaccine Hesitancy Trends in America

There are numerous trends in vaccine hesitancy and denial among Americans. Parents who believed strongly in vaccine adverse effects, distrusted institutions, had a feeling of helplessness, questioned vaccine efficacy, or desired bodily autonomy, were more likely to express vaccine hesitancy or outright deny them for their children [5]. University students were more likely to accept a vaccine if they perceived that a vaccine-preventable disease caused immense physical suffering or had a family member who contracted the illness in the past [6]. Americans who distrusted public institutions, like the CDC, were older in age, childless and less educated, and were more likely to be vaccine hesitant [7]. In 2020, 6% of parents were hesitant against routine childhood vaccines and 25.8% were hesitant against flu vaccines [8]. Low efficacy and the potential risk of side effects were cited as the most important factors for avoiding vaccines [8]. Parents of lower socioeconomic status,

Hispanic heritage and fewer years of education were more likely to be hesitant [8].

Vaccine Hesitancy Among Muslims

Most studies on vaccine hesitancy among Muslims were conducted in Muslim majority countries. For example, 96.1% [9] and 80% [10] of Saudi parents supported vaccination in 2021 and 2019, respectively. 92% [11] and 88.4% [12] of Malaysian parents supported vaccination in 2020 and 2017, respectively. Pakistani parents in Taliban controlled areas were 23% to 39% less likely to vaccinate their children compared to parents in non-Taliban controlled areas [13]. 68.4% of Nigerian mothers accepted vaccines [14]. Some studies combined data from multiple countries. For example, Owoaje et al. [15], who analyzed vaccine hesitancy trends in Afghanistan and Nigeria. 18 Arab nations aggregated vaccine acceptance rates of 29.4% and 30.9% in 2021 for COVID-19 and influenza immunizations, respectively [3]. Other studies contained samples from countries with Muslim minorities, such as 61% of the children in a Muslim-dominated area of Ethiopia received regular vaccinations [16].

Knowledge Gaps

There are no consistent vaccine hesitancy trends in Muslim communities living in multi-faith countries, like the United States and United Kingdom [17]. Therefore, most information about western Muslims is found in secondary sources. For example, in 2017, there was a highly publicized outbreak of measles in the Somalian-Muslim diaspora in Minnesota. Public health officials cited the increasing anti-vaccine sentiments within the community as the primary cause of the outbreak [18]. Vaccine hesitancy studies in multi-faith countries typically cast a wide net. For example, 65% of Irish and 69% of British people accepted vaccines in 2021 [19]. Unfortunately, religion was not studied in this sample, so

it's unclear if there were any religious associations with vaccine sentiments.

Themes

In past studies, there were several factors that influenced Muslim parents' willingness to vaccinate their children, such as religious prohibitions [20], parental experience [3], level of trust within public institutions [21], and political affiliations [19]. For example, some Malaysian parents were concerned about vaccine ingredients, considering how certain vaccines utilize pork byproducts during production and consuming pork products is forbidden in the Islamic tradition [22].

Methods

Study Design

We designed a cross-sectional, quantitative study. Participants completed an online survey on the Qualtrics platform; they were convenience and snowball sampled. Data collection began in May of 2022 and was completed 2 months later in July. Because the study utilized an online survey, the authors utilized the CHERRIES framework [23]. A completed CHERRIES checklist can be found in Appendix 1.

Questionnaire Tool

Appendix 2 contains the full questionnaire. The survey was divided into 4 sections: demographics, religion, political beliefs, health beliefs. The following belief scores were created to quantify participants' responses: religiosity, vaccine hesitancy, trust in healthcare institutions, and political ideology.

Belief scores were quantified by assigned questions, as listed in (Table 1). Each question was scored using a Likert scale that was associated with its answers. Health belief scores were dependent variables. Generally, the higher the score, the stronger the belief. For example, a score of 5 for religiosity meant that the participant did not identify as a religious Muslim, whereas 25, which is the highest possible composite religiosity score, reflected an intense devotion.

The only exception to this rule was the political beliefs composite score, which analyzed the participant's political stance on a scale from extremely liberal to extremely conservative. For example, participants with a score of 30, the highest possible, identified as having very conservative political and social beliefs. Not all

participants could answer the question that is denoted with a superscript (^a). It inquired about children, so child-free participants were scored 0 for this question. The questions that surveyed political beliefs were split into the political beliefs score and trust in public institutions score.

Score Name	Min	Max	# Q's	Question Number
Religiosity				
	6	30	6	13, 14, 15, 16, 17, 18
Vaccine Hesitancy				
	7	40	8	32, 33, 35, 36, 37, 38, 39 ^a , 40
Trust in Public Institutions				
	6	30	6	25, 26, 27, 28, 30, 31
Political Beliefs				
	6	30	6	19, 20, 21, 22, 23, 24

Table 1. Description of composite scores in belief category

Participant Selection

A target sample size of 43 was determined from the following parameters:

- Study Group Design: One study group vs. population
- Primary endpoint: dichotomous
- Anticipated incidence: 70% known population, 50% study group
- Alpha (α): 0.05
- Power: 0.80 (Beta (β) = 0.20)

Participants were required to be at least 18 years of age, identify as a Muslim, and live at least 5 years in the U.S. at the time of completing the survey. Since there are immigrants to the United States who are Muslim, it was necessary to set a limit on what this study defines as "American." Immigrants need a few years to acclimate and identify as a member of their new country, so it was necessary to have a set minimum amount of time to establish how well someone identifies with their residence.

The inclusion criterion of 5 years was selected since the naturalization process requires that all eligible applicants for citizenship live in the country for at least 5 years [41]. Participants in the exclusion criteria did not meet all the requirements for the inclusion criteria.

The participants were recruited through 10 Muslim-oriented Facebook groups. Appendix 3 is the recruitment

message that was posted in the Facebook groups and Appendix 4 lists the Facebook groups that received the recruitment message. Interested individuals accessed the survey using the link provided in the recruitment message.

In the recruitment message, participants were encouraged to further spread information about the study to other individuals in their social circles who met the inclusion criteria. The recruitment message was posted on the same date in May 2022, after which survey responses were collected in Qualtrics.

The survey was closed in July 2022. Selection of the Facebook groups was more deliberate, because targeted recruitment could ensure a higher chance of acquiring survey responses from the inclusion criteria. Thus, groups with larger memberships and more page activity were chosen over those that did not have these qualities.

Analysis

All data analysis was completed on the IBM SPSS Statistics 28 software. First, descriptive statistics were obtained for the following demographic factors: age, gender, race, highest level of education completed, employment status, total combined household income before taxes, marital status, number of children under the age of 18, Islamic sect, political views, source of healthcare information, and factors for vaccine hesitancy. Normalcy was scrutinized. When a demographic variable was skewed, it was transformed into a normal distribution.

The four belief scores were calculated for each participant. The belief scores and the COVID-19 vaccination status were analyzed using T-tests and linear regression testing to determine if there are associations with the demographic variables.

Additionally, correlation was conducted with continuous output variables. Finally, multiple regression analyses were conducted using the bivariate significant values for each score.

The unadjusted model was created using the “Enter” preset while the adjusted model utilized the “Backwards” preset.

Ethical Considerations

Written informed consent for involvement in the study

and publication of this paper was obtained from all subjects. The informed consent statement is in Appendix 5. The study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board of the University of Texas in Tyler (IRB #2022-030 on May 12, 2022).

Participants volunteered to be in the study; thus, they were not compensated. All study data was collected anonymously.

Results

In April of 2022, a pilot study was conducted with five individuals. After IRB approval, the website link to the survey was disseminated online to Facebook groups. Data collection began in May of 2022 and was completed two months later. 73 responses were received. 65 met the required inclusion criteria. Since 43 participants were sought, the extra responses meeting the inclusion criteria increased this requirement by 51% (65/43).

Belief Score Distributions

The distribution of the vaccine hesitancy scores is shown in Figure 1, showing a pronounced negative skew. Table 2 lists the means and standard deviations (SD) of all belief scores. The skewness of each belief score is as follows: -0.045 for religiosity, +0.269 for political leaning, +0.645 for trust in public institutions, and -1.192 for vaccine hesitancy.

More participants with increased feelings of vaccine hesitancy were represented in the study. Thus, the data was transformed into a normal distribution using the following equation:

$$Y \text{ (transformed vaccine hesitancy score)} = \text{SQRT} (40 - \text{vaccine hesitancy score})$$

Different transformations were tested to obtain a data spread that most resembled a normal distribution. The square root transformation reduced skewness to a greater extent than cubed or inverse transformations, because vaccine hesitancy scores that utilized the square root transformation had a more pronounced normal distribution compared to the other transformations.

This transformed data was used for statistical testing. The transformed vaccine hesitancy score distribution is seen in Figure 2.

Belief Score	Min	Max	Mean	SD
Religiosity				
	6	30	17.55	6.22
Political Beliefs				
	6	24	14.18	4.47
Trust in Public Institutions				
	8	26	15.58	3.72
Vaccine Hesitancy				
	16	40	33.03	5.50

Table 2. Means and standard deviations (SD) of belief scores.

Of all belief scores, vaccine hesitancy had the highest mean relative to its score range. This implies that more participants with increased feelings of vaccine hesitancy were represented in the study.

Demographics & Bivariate Analysis on Belief Scores

The frequencies and *P*-values of all demographic variables and the belief scores are listed in Appendix 6. For brevity and clarity, we report the statistically significant findings in this paper. 45 participants (71.4%) identified as female, and 17 (27.0%) as male. 1 (1.6%) selected a gender identity of “other”. Because there was only 1 participant who did not identify as either male or female, and their response patterns were unusual, this participant’s responses were removed. We found that sex had no relationship with any of the belief scores.

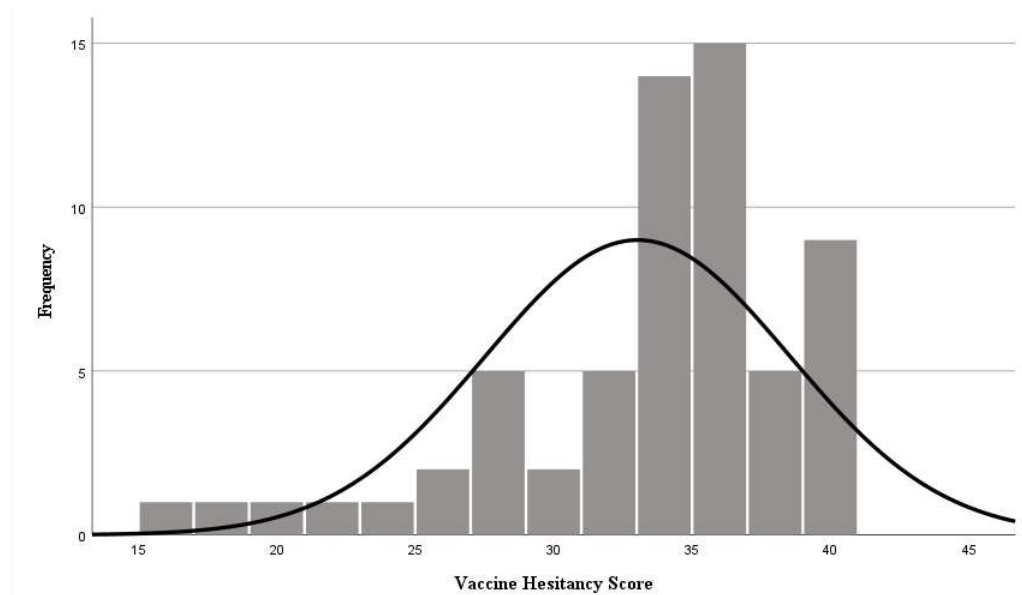


Figure 1. Distribution of Original Vaccine Hesitancy Scores. This distribution exhibits a right-ward skew, supporting the idea that more participants with increased feelings of vaccine hesitancy were represented in the study.

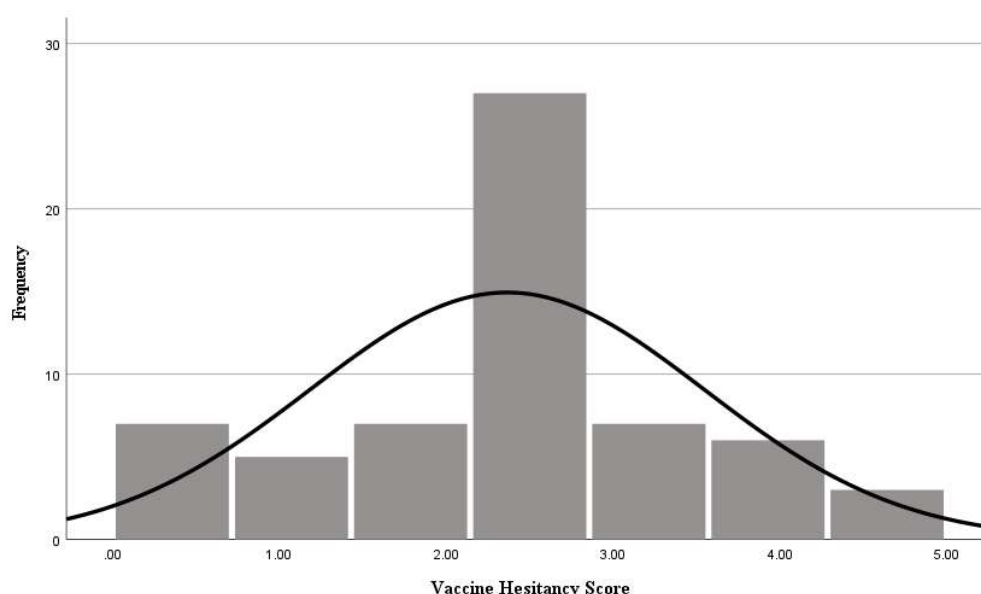


Figure 2. Distribution of Transformed Vaccine Hesitancy Scores. This new distribution exhibits a stronger normal distribution than the original distribution. The transformed data was utilized in all analyses.

The average age of participants was 32.0 ± 10.8 years. The median age was 28.5 years. The youngest participant was 19 and the oldest was 71. Age was associated with trust in public institutions and vaccine hesitancy: As one aged, the less hesitant one becomes. 50 participants (80.6%) identified as Asian, 6 (9.7%) as white or Caucasian, 2 (3.2%) as Middle Eastern, 2 (3.2%) as mixed race, and 1 (1.6%) identified as Black or African American. 1 participant (1.6%) selected "other," but did not specify a racial identity. Asian race was marginally associated with trust in public institutions. 32 participants (51.6%) attained a graduate or doctoral degree, 24 (38.7%) had a bachelor's degree, 4 (6.5%) had some post-secondary education but no degree, 1 (1.6%) had a high school diploma or equivalent, and one (1.6%) had an associate degree. Education was associated with trust in public institutions and vaccine hesitancy; with a higher education level, there is less hesitancy.

Participants reported their combined household income before taxes in 2021. The average income was \$121,383.87. The minimum income reported was \$0 and the maximum income was \$1,500,000.

In examining the distribution, income was left skewed by +6.28, with more participants reporting lower incomes. Two data points with an income of \$0 and one data point with an income of \$1,500,000 were removed from the transformed dataset, because they were strong outliers and worsened the data skewness.

32 participants (50.8%) were employed or self-employed, 7 (11.1%) were not employed and not looking for work, 4 (6.3%) were not employed and were currently looking for work, 2 (3.2%) were retired, 17 (27%) were students, and 1 (1.6%) was unable to work. Employment status was associated with trust in public institutions and vaccine hesitancy. 32 participants (51.6%) were married and 25 (40.3%) were single and never married. 3 participants (4.8%) were in a relationship and not married, 2 (3.2%) were divorced. Marital status was significantly associated with vaccine hesitancy, with married participants more hesitant. 20 participants (32.3%) reported having children under the age of 18 in their household while 42 participants (67.7%) did not.

49 participants (79.0%) identified as Sunni, 6 (9.7%) were Shia, 4 (6.5%) were Sufi, and 3 (4.8%) did not associate with any sect of Islam. Religious sect was associated with vaccine hesitancy; Sunnis were less hesitant of vaccines than non-Sunnis.

35 participants (55.6%) received most of their healthcare information from a licensed healthcare professional, 18 (28.6%) obtained it online, 3 (4.8%) utilized print media, 1 (1.6%) utilized radio, and 1 (1.6%) utilized television. 5 (8.1%) reported they used "other" sources. They received most information from scholarly sources, like peer reviewed journals, or clinical resources, like UpToDate.

61 participants (96.8%) received at least one dose of the COVID-19 vaccine, while 2 (3.2%) did not. Participants indicated their most important factor in receiving a

vaccine. 23 (36.5%) were more willing if a vaccine had no safety issues. 8 (12.7%) were more willing if a vaccine did not cause potential allergies. 6 (9.5%) if a vaccine was free or low cost. 4 (6.3%) were more willing if a vaccine had no potential for causing autism or any other illness. 4 (6.3%) if vaccines had no pork-based ingredients. 4 (6.3%) were more willing because someone close to them had an illness. 2 (3.2%) were more willing because the people around them were receiving vaccines.

Of the 12 participants (19%) who selected “other” as their most important factor for receiving a vaccine, 4 were more willing if the vaccine “actually prevented the disease,” 3 if there was proven scientific research and evidence for a vaccine, 2 if a vaccine had no side effects and 2 if they knew a vaccine could protect other people. 1 participant reported there was not one factor but rather many factors that affected their decision, and one participant reported they would get any vaccine recommended by their healthcare provider.

Additionally, participants reported on their most important reason for avoiding a vaccine. 15 participants (23.8%) were less likely to attain a vaccine if it had other safety issues not listed in the survey. 15 (23.8%) were less likely if they knew a vaccine was less efficacious, 8 (12.7%) if a vaccine had a potential for causing autism or any other illness. 7 (11.1%) selected “other” as an important factor for avoiding a vaccine. 7 (11.1%) were less likely if a vaccine caused potential allergies, 6 (9.5%) if a vaccine was expensive, 5 (7.9%) if a vaccine contained pork-based ingredients, and 4 (6.5%) who reported they had no reasons for avoiding a vaccine.

Correlation Analyses

Because age and income were continuous variables, correlation analyses were completed. We analyzed untransformed age and income values with each belief scores. Appendix 7 shows all findings for the parametric Pearson and non-parametric Spearman correlation. There was a significant positive Pearson correlation of age, household income, and religiosity score with the political beliefs score. Also, there was a significant positive Spearman correlation of age and religiosity score with the political beliefs score, income with religiosity score, and trust score with vaccine hesitancy.

Because Spearman correlations are less sensitive to large outliers, there is a loss of statistical significance between income level with the religiosity score and political score.

The strongest correlation is between the religiosity score and the political beliefs score (+.593).

Multiple Regression Analyses

Because none of the demographic variables were statistically significant on the religiosity and political beliefs scores, in the bivariate analysis, we did not complete multiple regression analyses on these scores. Appendix 8 and Appendix 9 show the multiple regression analyses for trust and vaccine hesitancy scores using two models. We discuss the statistically significant findings further.

Trust in Public Institutions

Model 1 compared the trust score with the statistically significant variables from the bivariate analysis. Model 2 compared the trust score with statistically significant variables and the other belief scores. In Model 1, participants older than 28.5 years were marginally more likely to have higher trust scores, controlling for race, education level, and employment status. In Model 2, participants with lower vaccine hesitancy scores were marginally more likely to have higher trust scores, controlling for the six other independent variables. Age ceased to be important in Model 2. 6.3% of the variability in trust was attributed to the four demographic variables in Model 1 ($R^2 = 0.063$). 17.4% of the variability in trust was attributed to the four demographic variables plus the three other health belief scores in Model 2 ($R^2 = 0.174$).

Vaccine Hesitancy

Model 1 tested the hesitancy score with the statistically significant variables from the bivariate analysis. Model 2 tested the trust score with the statistically significant variables and the other belief scores. According to Model 1 and Model 2, participants with a graduate or a doctorate degree were more likely to have higher hesitancy scores. This finding contradicts that of the T-test bivariate analyses.

Moreover, Model 2 showed that participants with higher trust scores were marginally more likely to have lower vaccine hesitancy scores, with education remaining significant, controlling for all other variables. 10.2% of the variability in vaccine hesitancy was attributed to the five demographic variables in Model 1 ($R^2 = 0.102$).

17.9% of the variability in vaccine hesitancy was attributed to the five demographic variables plus the three other health belief scores in Model 2 ($R^2 = 0.179$). Lastly, there was no association between the vaccine hesitancy score and whether a participant received at least one dose of the COVID-19 vaccine.

Psychometric Testing

Since this study relies heavily on responses obtained from an online survey, we completed internal validity testing. The McDonald's omega total for each belief score is as follows: religiosity = 0.893, political beliefs = 0.466, vaccine hesitancy = 0.864, trust in public institutions = 0.733. Internal validity testing was also completed using Cronbach alpha, which revealed the following scores: religiosity = 0.893, political beliefs = 0.600, vaccine hesitancy = 0.865, trust in public institutions = 0.792. Thus, the calculated belief scores on religiosity, vaccine hesitancy, and trust in public institutions reflected the most internal consistency. The low McDonald's omega and Cronbach's alpha for the political beliefs score may be due to participants interpreting questions differently or holding contradictory political and social attitudes. After all, individuals may not regard every aspect of a sociopolitical ideology with the same manner. There is diversity within individuals' political beliefs.

Discussion

The goals of this study were to determine the factors that influenced vaccine hesitancy among Muslim-Americans and give healthcare providers a clear picture on how to address vaccine hesitancy with their Muslim patients, by learning about its prevalence and the socioeconomic factors that contribute to it. We hypothesized that vaccine hesitancy in Muslim-Americans follows anti-vaccination trends within the United States.

Demographic Factors

As age increased, vaccine hesitancy decreased, as confirmed by some studies [19, 28, 34, 35, 36] and contradicted by others [31, 32, 33]. More educated participants were less vaccine hesitant, which was supported by the multiple regression analysis. Similar relationships were found in some studies [3, 28, 35, 36] but contradicted in others [37]. Employed participants were less vaccine hesitant, which aligned with some previous research [28, 29] and not in others [30]. Furthermore, previous studies have reported that unmarried participants were more vaccine hesitant [28,

29, 36] which contradicts the findings of this study and others [31]. Lastly, participants who identified as Sunni were less vaccine hesitant than those who were non-Sunni. No other study was found to have discussed hesitancy trends among Muslim sects, so this study was the first of its kind to determine statistically significant differences in vaccine acceptance between Sunnis and non-Sunnis. Ideally, more research will be conducted in the future to further elucidate the connection between sect and hesitancy. Only 9.7% of the sample represented Shias, whereas it's estimated that 15%-20% of Muslim-Americans are Shia [57]. So, the differences in vaccine hesitancy compared to Sunnis is more of a speculative finding than one that is a proven public health trend.

Belief Scores

Religiosity

Income had a positive correlation with religious beliefs. There is no recent data on the connection between high income and stronger religious adherence compared with the findings of this study. In the last Religious Landscape Survey by the Pew Research Center from 2014, participants with higher incomes were less likely to attend religious services, have strongly associated beliefs in their faith or even align themselves with a particular religion [43]. So, while the findings of this study do not correspond with general trends between socioeconomic status and the extent of religious belief, any relationship between the two among Muslim-Americans is speculative. We do not have a strong theoretical framework on how income influences religiosity and vice versa. Additionally, participants with stronger religious beliefs favored more right leaning political, economic, and social ideologies. This aligns with general trends, like Americans with stronger religious leanings tend to follow conservative civic ideologies [44]. Because Muslim-Americans express and experience their religion in different ways, depending on sect and cultural background, it is difficult to determine what factors influence the extent of religiosity on other factors. While religiosity did not have a statistically significant relationship with trust in public institutions, a similar study on Muslim-Norwegians showed that the degree of religiosity worsened trust in the government and media [54].

Political Beliefs

Older age and higher income correlated with more conservative ideology in this study. While adults tend to have stable political beliefs over time, those who

transition in their beliefs as they age are more likely to go from left leaning to right leaning [44].

Trust in Public Institutions

Participants were less likely to accept vaccines if they perceived that the institutions associated with them were not trustworthy or did not have the best interests of the public. The multiple regression analysis and other studies supported this [5, 7, 21, 26, 27, 44]. This finding was not surprising, as there are a multitude of factors that influence how Muslim-Americans perceive vaccines and the healthcare industry. These include but are not limited to socioeconomic barriers of healthcare access, systemic discrimination, Islamophobia and culturally uninformed health services [47].

For example, Muslim-Americans felt that the government limited COVID-19 relief to their communities and non-profit organizations because of racist policies. These feelings of discrimination by the government aligned with a lack of trust in institutions. Even so, leaders from Muslim non-profit organizations were more likely to distrust the state government if they resided in a state with a strong Republican influence [51]. This aligns with other opinion polls, where Muslim-Americans expressed more trust in President Joe Biden and expressed low approval ratings for President Donald Trump compared to other religious groups [54].

Moreover, there are historical barriers to developing trust. For example, pregnant Arab women had worse birth outcomes after September 11, 2001 (9/11), due to the increased stigma around Muslims at this time [50]. The Patriot Act promoted intrusive surveillance of Muslim-American communities, which further isolated them and created an environment of paranoia. Three Muslim charities were labelled as terrorist organizations and eventually shut down [51]. In studies both in the U.S. and abroad, discriminatory socioeconomic and political policies create poor health outcomes for Muslims [47].

Unusual Findings

One association contradicted itself. Increased trust in public institutions and more education was associated with less vaccine hesitancy, but more education was not associated with higher trust scores. In an ideal scenario, more education would lead to more trust in public institutions and less vaccine hesitancy. The transformed vaccine hesitancy score data may have created this inconsistency. There was a positive association between

trust in public institutions and more education with the untransformed data; however, the association became negative when untransformed vaccine hesitancy scores were analyzed with trust scores and education level. An explanation for this effect modification may originate in healthism, which refers to the “beliefs, behavior and expectations of the articulate, health-aware and information-rich middle-classes” [51]. Supporters of healthism may favor holistic, natural remedies over those of conventional medicine. They may view modern technology, especially that of vaccines, as unnatural and introducing unnecessary risks. Healthism is underpinned by a deep distrust of public institutions in favor of alternatives. Supporters usually have a plethora of unproven health information and research to refute conventional medical research. In this situation, it is the overabundance of false information that creates vaccine hesitancy, not the lack of well-documented evidence supporting vaccination.

Considerations, Limitations & Strengths

Online surveys with convenience sampling allow researchers to cast a wide net to attain participants with very little effort for recruitment. However, they pose problems with information validation. If a participant had at least one response that was an extreme outlier (± 3 standard deviations from the mean) or showed abnormal reporting patterns, all their responses were removed from the data analyses. This explains why only 62 participants were included in the final analysis, despite 65 participants meeting the inclusion criteria. Moreover, participants were asked about their opinions on vaccines for themselves, not for others, so there may be differences between how a person views vaccines for themselves or for someone else.

Additionally, the survey was not distributed as widely as intended. Twenty-five Facebook groups were selected for distribution; however, only 10 disseminated the survey and they were dominated by South Asian and Sunni Muslims. To put this in context, only 1.6% of survey participants identified as Black or African American, but they make up 20% of Muslim population in America [45]. Also, the sample size was smaller than similar studies on vaccine hesitancy. However, the calculated minimum sample size for this study was 43, so the acquired 62 responses was higher than the smallest necessary sample. There may have been a more representative sample if Facebook advertisements were utilized, but this would have introduced new limitations, like increased study costs and high rates of survey attrition [46]. Unfortunately, Qualtrics did not provide

completion data for this study's survey, so an adequate comparison cannot be made.

Even so, there may be sampling bias. The lead author of this study is a South Asian Sunni woman in the medical field, who shared the survey in personal and academic circles. Thus, educated individuals with the means of accessing reliable health information resources, primary care physicians and healthcare services were overrepresented. Muslim-Americans practice in diverse ways. We inquired about halal vaccine ingredients, but this question may be interpreted in differing ways, depending on one's sect, cultural background, and religiosity. Also, there is a social desirability bias for this study's questionnaire. There is a possibility that participants implicitly overreported positive belief scores, like the extent of their religiosity. These discrepancies impacted the findings of this survey because there are statistically significant associations between education level and trust in public institutions with vaccine hesitancy.

Lastly, there was a possibility that the multiple regression underestimated the effects of racial identity on vaccine hesitancy. Participants volunteered to share their opinions, so there may be recall bias, a Hawthorne effect, or incorrect recollections. There are numerous unmeasured confounding factors, like language barriers, previous experience with the American healthcare system and immigration background, which can influence belief scores. Unfortunately, it is difficult to quantify these factors into objective findings since they are subjective opinions.

To offset these limitations, the study had several analytical strengths. First, skewed variables were transformed into a normal distribution. Second, while the independent samples T-tests compared the means of the belief scores, the multiple regressions reduced the effect of confounding variables. The multiple regression models compared demographic and confounding variables. Lastly, internal validity testing strengthens analyses on religiosity, vaccine hesitancy, and trust belief scores. A proposed future study would aim to improve the diversity of the sample and the sample size.

Recommendations

Overall, public health scientists must have compassion and empathy when engaging the public on vaccination. Healthcare is a deeply personal choice that reflects one's background, personal history, and beliefs. We show that distrust in public institutions increases vaccine hesitancy.

Thus, there must be transparency at all levels of public health infrastructure [47]. Government agencies can dispel misinformation about vaccines and communicable diseases through campaigns and advocacy [48]. Healthcare providers should utilize accessible language when educating their Muslim patients on the risks and benefits of vaccination. This can include incorporating brochures or translation services [47]. Also, by understanding vaccine hesitancy factors for each patient, clinicians can address individual concerns and personalize the healthcare experience [48].

We show that there are differences in vaccine acceptance between two major Islamic sects. While our sample size is small, there is so little information on specific vaccine hesitancy patterns among Muslim-American. This data is the first step in extrapolating Muslim-American healthcare patterns among different sects and in-groups. While public health research focuses on determining broad healthcare trends in distinct groups, we believe our study is best suited as a primer for further questioning [53]. We aim for our study to also highlight pitfalls in recruiting participants online, so similar studies in the future can avoid our mistakes and obtain a more representative sample of Muslim-Americans. Moreover, the discrepancy in vaccine hesitancy between Sunnis and Shias, while a weak relationship, is an interesting speculation. Are Shias truly more vaccine hesitant or is this explained by their underrepresentation in the study? We hope our findings generate more interest in further studying if and to what extent Shia Muslim-Americans are vaccine hesitant. Even though our findings are preliminary, it highlights how a portion of the population can contain much diversity within itself. Clinicians should aim for proactive discussions with their Shia patients, as they should with all of their Muslim patients, by addressing concerns with vaccination early, dispelling misunderstandings, and reaffirming patients' decision to vaccinate [47].

Finally, we recommend the use of culturally appropriate community-level outreach [49]. For example, public health outreach led by women would be more acceptable to female Muslim-Americans [48]. Also, since Islam has a diverse cultural tradition, mainstays of Muslim belief across all sects should be emphasized when developing advocacy strategies. For example, HPV can be transmitted by non-sexual contact, so an HPV vaccine can be beneficial for monogamous or celibate young patients [48]. This is a better approach than simply telling Muslim-American patients how HPV causes cervical and anal cancers [47]. Overall, we recommend against overly moralizing vaccines as it can alienate patients and cause

further hesitancy. While it's easy for healthcare workers to express frustration at those who harbor anti-vaccination sentiments, it's important to remember that all people are pulled by their own biases and conflicts of interest. Thus, it is necessary to have a sense of optimism and remain proactive in developing people's trust in vaccines.

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Data Availability

All study data available on request from authors.

Conflicts of Interest

None declared.

Abbreviations

CDC: Centers for Disease Control and Prevention
U.S.: United States of America
HPV: Human Papilloma Virus

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Dr. Hassan Najjar , The Physician of the Nation and Its Living Conscience - Obituary

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In the name of God, the Most Gracious, the Most Merciful

“And whoever saves one life, it is as if he has saved all of mankind.”

On April 25, 2026, one of the brightest chapters of Arab medicine in the Diaspora came to a close. Dr. Hassan Najjar, passed away at the age of 91, after a life spent as a healer of wounds—both of individuals and of nations—and as a defender of the oppressed, from Aleppo to Bosnia to Gaza.

This is a comprehensive documentary account of a man who was not merely an individual, but an institution walking on two feet.

First: The Physician and Surgeon... From Istanbul to Stuttgart

Birth and upbringing:

Dr. Hassan Najjar was born in 1935 in the city of Aleppo, into a distinguished patriotic family. His father, Yassin Najjar, was among the notable figures of Aleppo who resisted French colonialism.

Education:

He completed his secondary education in 1952 and graduated from the Faculty of Medicine at Istanbul University.



He later specialized in general surgery in West Germany, training in Hanover hospitals until he attained the rank of Senior Consultant Surgeon.

Return to the Homeland:

He worked as a physician in Morocco, in the city of Youssoufia, before returning to Aleppo in 1970. There, he contributed to the establishment and development of Aleppo Private Hospital (formerly Hanano), where he headed the surgery department and became one of the pioneers who introduced modern surgical practices to the city.

Second: Between Imprisonment and Assassination Attempt... The Price of a Free Word

Dr. Hassan's path was not paved with ease. He paid dearly for his principles:

1. He was arrested in 1979 under the former regime of Hafez al-Assad, as part of a campaign targeting intellectuals and independent physicians.

2. In 1980, he survived an assassination attempt when intelligence forces stormed the operating room during a procedure. He was forced to leave Syria for Germany after a warning from an honorable officer that his name was on an execution list.

Exile did not silence him. He opened a clinic in Stuttgart and transformed his personal suffering into a public cause.

Third: The Architect of Arab Physicians in Europe... 25 Years of Building

In Germany, Dr. Hassan chose not comfort, but construction:

1. He founded the Union of Arab Physicians in Europe and served as its president for 25 years, transforming it from an idea into the most powerful Arab medical body in the diaspora.

2. A pioneer of medical conferences, he was the driving force behind launching Arab medical conferences from Europe to Arab capitals, connecting thousands of physicians, transferring knowledge, and opening training opportunities for young Arab doctors.

3. He insisted on continuing the ***"Arab Physician"*** medical journal as the only Arabic-language medical publication issued in Europe, believing that the Arabic language can encompass all sciences.

4. In 2008, he signed a historic twinning agreement in Vienna between the Union of Arab Physicians in Europe and the Union of Arab Physicians and Pharmacists in Austria.

5. He contributed to numerous medical and educational initiatives, including Al-Andalus University in Al-Qadmous, Syria, where he served as Chairman of the Board of Trustees—his body in Germany, but his heart in the homeland.

Fourth: The Relief Doctor... From Bosnia to Palestine to Syria

Dr. Hassan believed that *"medicine without humanity is an incomplete profession."* He personally led medical relief missions to every place where wounds were bleeding:

1. Afghanistan: During the Soviet occupation, he carried his surgical kit into dangerous areas مناطق to treat the wounded and civilians.

2. Bosnia and Herzegovina: In the 1990s, he was among the first Arab physicians to reach besieged Sarajevo, working in field hospitals under bombardment and saving hundreds of lives from genocide.

3. Palestine – Gaza: Palestine was never absent from his heart. He joined medical delegations that broke the siege on Gaza, performed complex surgeries under near-impossible conditions, and trained local doctors.

4. The Arab and African worlds: From Somalia to Yemen to refugee camps, he left his mark wherever there was suffering.

Fifth: Defender of Detainees... The Voice of the Voiceless

Dr. Hassan never forgot those behind bars. He was active in advocating for Syrian detainees—including his own brother—through international human rights organizations such as Amnesty International.

He turned his office in Stuttgart into an operations room for documenting violations and corresponding with European parliaments.

He believed that defending a prisoner's freedom is no less important than removing a tumor from a patient's body.

Sixth: With the Syrian Revolution... The Doctor Returns at Seventy-Seven

When the Syrian revolution erupted in 2011, he was 77 years old. While others retired, he put on his white coat once again:

1. He established medical centres in Reyhanlı and Antakya along the Turkish border to treat wounded civil Syrians and displaced .
2. He personally worked shifts in an emergency clinic with twenty beds, performing surgeries, visiting camps, and following up on the needs of the displaced.
3. He conveyed the suffering of the Syrian people to medical and human rights forums across Europe, becoming a voice of the revolution in international conferences.

Conclusion: The Knight Has Passed... The School Remains

What can be written in elegy for such a man?

We write that he was the physician of the nation and its living conscience.

We write that he combined the surgeon's scalpel with the heart of a revolutionary, the precision of a scholar with the compassion of a human being.

We write that the Union of Arab Physicians he founded, the conferences he launched, and the patients he healed in Bosnia, Gaza, Aleppo, and Antakya all testify that he truly "*saved all of mankind.*"

Rest in peace, O father of surgeons.

You have left us a school whose name is this: *to be a physician is to be, first and foremost, a human being.*

Your legacy is a trust upon our shoulders—your students in Europe and the Arab world—and it will not be lost.