

Vaccines: Religio-cultural arguments from an Islamic perspective

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Abstract

As of December 29, 2020, more than 70,750 deaths had been reported in the UK to have been caused by COVID-19. Although efforts are being made worldwide to develop a vaccine, the question British Muslims face is regarding the Islamic ruling on the Pfizer-BioNTech COVID-19 vaccine. For this purpose, this article provides an analysis of the research into the main arguments made from an Islamic perspective concerning vaccines. These arguments are extrapolated from the discourse on vaccination by examining key fatwas and events since the late 1980s. My research finds that the 57 member states of the Organisation of Islamic Cooperation (OIC) have been and continue to be strongly in favour of eradicating infectious diseases through the use of vaccines. The arguments made against vaccines are based on a) an interpretation of the Qur'an that the human immune system is not designed to be vaccinated through intramuscular (IM) or oral vaccines and b) that vaccines contain dangerous ingredients. Moreover, in war-ravaged Muslim countries, notions have emerged that vaccines are adulterated to sterilise Muslim women. This article is aimed to help British muftis, Muslim faith leaders, healthcare professionals in the UK, the NHS and PHE to help contextualise the arguments put forward against vaccines in the effort to overcome challenges in introducing the new Pfizer-BioNTech COVID-19 vaccine.

Introduction

The information in this article is intended to inform British muftis, Muslim faith leaders, healthcare professionals in the UK, the NHS and PHE - of the Islamic perspective on vaccination and the approaches Muslim jurists around the world have taken towards vaccination. The findings could help to discuss and combine efforts to best advise the British Muslim community with regard to the Pfizer-BioNTech COVID-19 vaccine. The proposed use of this vaccine is 'for active immunization for the prevention of COVID-19 caused by SARS-CoV-2 in individuals 16 years of age and older' [1][2]. For this purpose, some of the underlying arguments for vaccine hesitancy based on theological and socio-cultural factors are explored.

1.1 Methodology and scope of the article

An analysis of existing fatwas on vaccination is provided in this article. However, as Padela [3] points out, *'it is impossible to gather all fatwas on any issue as they are rendered verbally or in writing and in various languages and are found in diverse media sources including radio and television programs, websites, newspapers, book collections, policy reports, and academic papers'*. As such, my research is limited to key fatwas written in English, Urdu, and Arabic on vaccination since the late 1980s. Likewise, the arguments made against using vaccines discussed in this article are not exhaustive, but ones that have been seen to give significant rise to vaccine hesitancy among Muslim populations in Afghanistan, Pakistan, Nigeria and Johannesburg, South Africa.

At the time of writing this article, the rolling out of the Pfizer-BioNTech COVID-19 vaccine was imminent. Now that this vaccine is made available, this article could

help provide an understanding of why some Muslims may hesitate and refuse this vaccine unless certain religio-cultural requirements are met.

1.2 Outline

To support vaccination, Muslim jurists have over the past few decades put forward arguments in favour of vaccines. On the other hand, there have emerged arguments against intramuscular (IM) and oral vaccines from non-jurists. Section 2 highlights the efforts of the member states of the OIC to eradicate deadly diseases using vaccines. Section 3 explores key arguments made in favour of vaccines. These arguments include not allowing harm to oneself or others; as well as ensuring that harm to others is prevented. This section also highlights the differences among Muslim jurists concerning the permissibility of the use of gelatine in vaccines. Section 4 examines the arguments and criticisms levelled against vaccines. Arguments selected in this section are ones that appear to have influenced anti-vaccination campaigns among Muslims. Such arguments promote the idea that humans are designed to be treated by natural means such as breast milk and other natural foods. Additional arguments explored in this section include the notion that vaccines contain dangerous ingredients and that they could be adulterated to cause infertility. Section 5 provides a summary of the main arguments for and against vaccines and also contains recommendations for British muftis and medical professionals in the UK to help address vaccine hesitancy now that the Pfizer-BioNTech COVID-19 vaccine is available.

2. Promotion of vaccination by member states of the OIC

This section highlights the efforts and campaigns by different Muslim organisations to eradicate known deadly viruses. Different nations continue to tackle this threat in their different ways. Such viruses pose a threat to Muslims in the UK as they do to the rest of the world. Given the statistics of the pandemic, the British Muslim community have been reported to have suffered excess cases and deaths as a result of the SARS-CoV-2 [4]. The efforts and campaigns by different Muslim organisations can help to inform and inspire British Muslims on different ways to handle the COVID-19 crisis.

In February 2014, an Islamic Advisory Group for Polio Eradication (IAG) was launched. This group consisted of the International Islamic Fiqh Academy (IIFA), the

Islamic Development Bank (IsDB), and the Organisation of Islamic Cooperation (OIC). The campaign mustered 57 member states of the OIC intending to eradicate polio [5]. The eradication program included promoting the use of intramuscular and oral vaccines, which have proven to be effective. Sheikh Yusuf Al-Qaradawi, Chairman of the International Union of Muslim Scholars, stated that the polio vaccine has been effective in over 50 Muslim countries and that its lawfulness in Islamic law is '*clear as sunlight*' [6].

Vaccination, as a process, gained trust because of the success it showed. In the first half of the 20th century, vaccines had been made available against pertussis (1914), diphtheria (1926), tetanus (1938), and influenza (the 1940s). In 1948, pertussis, diphtheria, and tetanus had been combined into one vaccine. Oral polio vaccines (OPV) were made available in 1955 followed by vaccines for measles (1963), mumps (1967), and rubella (1969). In 1971, the MMR vaccination was made available. Over the next two decades, the smallpox vaccine was discontinued because the disease has been effectively eradicated. The Hepatitis B vaccine was made available in 1981 and a vaccine for Haemophilus influenzae type b was made available in 1985.

Bearing in mind that vaccines are effective, the question that requires answering is – is providing or receiving vaccination a religious obligation? A difference of opinion exists regarding this question. The two major opinions worthy of mention include a) One is not required to take medication, especially if taking medication would bring unwanted side effects, and b) giving and receiving medication is praiseworthy and an act that is viewed to be honourable as well as seen to be making skilful use of the knowledge applied by humans. Whilst these two opinions are easily applicable to many diseases and illnesses, the circumstances during a pandemic are different. This difference is based on the fact that if an infected individual does not seek a cure, there is a risk of transmitting the disease to others simply through touch and exhalation.

On this note, in 1992, the International Islamic Fiqh Academy (IIFA) discussed medical treatments including vaccination. Resolution 67 states that among the objectives of Islamic law is the preservation of life. Accordingly, when not seeking medical treatment may lead to infecting others or causing death to others, then in such cases seeking medical treatment may be considered a religious obligation. The resolution further states that '*A ruler may impose medication in certain cases, as in*

the case of infectious diseases and preventive health measures' [7].

Consequently, in 2016, the Fatwa Committee of Perlis in Malaysia [8], which is one of the member states of the Parliamentary Union of the OIC (PUOICM), stated that vaccination is an Islamic obligation:

'Parents have the duty to protect their children from any form of harm. As of date, the vaccination of children has been proven the most effective ways in protecting children from infectious bacterial diseases such as measles, polio, influenza, meningococcal, diarrhea and others. It is considered a religious obligation (wajib) for parents or guardian to protect their children against these illnesses through vaccinating them. Any negligence of this duty on the part of the parents or guardian that may lead to any form of harm to the child is considered committing a sinful act. In addition, refusing to take any preventive measure to protect the society from such illnesses is also another form of sinful act.'

Although obligatory vaccines may be viewed as impinging on individual freedoms, an alternative approach to ensure public safety could be to restrict certain privileges. For instance, to obtain a Hajj or Umra visa, vaccination against certain viruses are required by the Saudi government. Likewise, Qantas Airways Limited, for instance, announced that vaccination will be required for passengers to fly on their airline [9].

Furthermore, Muslim organisations reacted to the rise in vaccine hesitancy in South Africa. Anti-vaccination sentiments among South African Muslims appear to have been introduced by Dr Abdul Majid Katme (2011), a British retired psychiatrist who argues that immunising children by means of vaccines is a form of *'medical assault'*. Katme also argues that IM vaccines could lead to a permanent loss of the immune system in children as a direct result of vaccination being a *'fatally-flawed system of intervention'*. Katme's ideas are further disseminated through the 'MajlisUlema - Voice of Islam' website. Paradoxically, this website does not quote Muslim jurists on the topic of vaccines. Moreover, the articles describe vaccines to be *'dirty'* [10], *'toxic'* [11], and *'satanic'* [12] as well as vaccine manufacturing as *'witchcraft'* [10] and manufacturing companies as *'devils'* [12]. Moreover, pamphlets containing Katme's ideas were circulated in print among the Muslims of Johannesburg.

In response, Dr Ebrahim Khan, president of the Islamic Medical Association of South Africa (IMA SA) stated that *'The IMA distances itself from any of these*

campaigns that advise people not to vaccinate The IMA position is that vaccination is an essential tool in the prevention of disease' [13]. Additionally, three more fatwas were issued by Mufti Ebrahim Desai of South Africa in support of vaccination in 2012. The debate on vaccination was mostly academic in South Africa, however, the anti-vaccination campaigns in Pakistan had resulted in the killing of health workers attempting to administer polio vaccines.

Consequently, in 2013, meetings on the theme of 'Polio Eradication in the Light of Islam' were held at the International Islamic University in Islamabad in collaboration with Al-Azhar University. The consultation report concluded that the OPV available in Pakistan do not contain any 'haram' content. It was also concluded that vaccines do not have any content that causes infertility, early adulthood, or lead to any other health disorders [14]. The consultation was also followed by a fatwa issued by Jamia Dar-ul-UloomHaqqania permitting vaccines - in light of recommendations from Muslim physicians [15]. Likewise, Mufti Muhammad Naem of Jamia Binoria, Karachi is also reported to have said in relation to OPV that *'In the past, I too had suspicious [sic] about the vaccine, but not anymore ... This vaccine saves children from lifetime disabilities and other preventable diseases'* [16].

The efforts to support vaccination campaigns to eradicate viral diseases mentioned in this section illustrate the value of vaccines to the Muslim states that are members of the OIC.

3. Arguments in favour of preventative measures

'La darar wa la dirar' – 'One should neither suffer harm nor cause harm to others'. This Islamic jurisprudential maxim serves as the underlying argument in favour of finding solutions to eradicate infectious diseases. Since medication and treatment involve a degree of pain and discomfort, this maxim refers to serious harm. In relation to SARS-CoV-2, according to this maxim, an individual should not suffer from the virus as a result of negligence in safety procedures. Likewise, an individual showing symptoms of COVID-19 must take every precaution by maintaining social distancing and self-isolation to ensure that the virus is not transmitted to another individual. As COVID-19 is a novel case, precedents of implementing this maxim can be found in relation to other diseases.

3.1 Offering medical treatment

Muhammad Rasulullah, the Prophet of Islam (Peace be upon him), himself often encouraged people to seek medical treatment and prescribed exact steps that needed to be taken. A compilation of such medical advice forms the '*Al-Tibb an-Nabawi*' literature - meaning 'Prophetic medicine'. Such encouragement of seeking medication is also in agreement with the Qur'an wherein the prophet Ayyub (Job), who had been patient with his illness, was instructed to seek a cure [17].

This aspect of Muhammad Rasulullah's teachings served as the basis for a fatwa by Sheikh Bin Baz [d.1999] in favour of vaccines. By 1988, polio was endemic in 125 countries [18]. Bearing in mind the success of the smallpox vaccine and the spread of polio, a timely fatwa was issued in 1989 by the then grand mufti of Saudi Arabia Abdullah Bin Baz. This fatwa was presented at the King Faisal Hospital in Ta'if and encouraged immunisation before the onset of diseases [19]. The fatwa was based on the teaching of Muhammad Rasulullah that eating seven dates in the morning could prevent one from harm [20]. This hadith also supports another hadith, which states that '*We are a people who do not eat until we are hungry. And if we eat, we do not eat to our fill*'. Pieces of advice such as these from the hadith literature reinforce the legal aphorism *sadd-ul-dhara'i* meaning blocking the means to something harmful and further establishes the medical maxim 'prevention is better than cure' [21]. Also, based on the fact that Muhammad Rasulullah himself advised preventative measures such as 'hijama' meaning cupping, seeking such measures is evidently praiseworthy for Muslims [22]. Taking preventative measures is also strongly recommended in the Qur'an - '*be fully prepared against dangers*' [23]. Having discussed in this subsection, the first part of the maxim, which dictates 'One should neither suffer harm', the following subsection discusses the second part of the maxim that dictates 'nor cause harm to others'.

3.2 Avoiding causing harm

In terms of prevention, using intramuscular and oral vaccines is a novel manner of immunising the body, an option that did not exist in the 7th century, during the lifetime of Muhammad Rasulullah. Given this background, there is no mention of IM or oral vaccines in the Qur'an. Nevertheless, in the hadith literature, which is the collection of texts believed to contain sayings, traditions, and the recorded actions of Muhammad Rasulullah, there exists advice in relation to personal hygiene. Strong emphasis can be found on thoroughly washing the hands after defecating, before ingesting any

food, and before congregating with others to pray. In relation to infectious diseases, Muhammad Rasulullah instructed 'not going to a region where an epidemic has broken out, nor to leave from a place where an epidemic has already spread'. Accordingly, one of the most important messages in the Shari'a is to prevent harm – in order to preserve human lives.

A collective public effort is valued more than individual choices during pandemics according to Islamic law. This collective effort focuses on the best possible outcome for the public as could be implied from Muhammad Rasulullah's advice wherein he instructed his followers to not leave an infected place - to help prevent the spread of infection to others. Muhammad Rasulullah also recommended keeping a spear's distance from an infected person; this distance is about two meters [24]. Likewise, when individuals become a health risk for other worshippers, then such individuals may need to be prevented from attending mosques. Camels are among the most valued possessions of the Arabs, especially the bedouins, and within this context, Muhammad Rasulullah emphasised that 'no diseased camel should come near a healthy one' [25]. The legal maxim derived from such instructions is that one should neither expose oneself nor others to any harm.

Based on the maxim of avoiding serious harm, Ja'far al-Sadiq [d.765] advised that when an epidemic strikes a congregation of a mosque, then those who did not attend the mosque - must distance themselves from those who did attend the mosque. As for those in the congregation who are already infected, they should be quarantined [26]. In relation to Friday prayers, Al-Naysapuri [d.875] states that scholars unanimously agree that Friday prayers are neither required for women nor the sick [27]. The ruling is perhaps because women would tend to the care of children and the elderly in the family, who would have been most vulnerable to infections. In extreme cases, where a disease is characterised as epidemic or pandemic, stricter measures may be required by authorities. An example of such a measure is to distance infected individuals from the healthy public. Ibn Battal [d.1057] adds that lepers can be prevented from entering mosques and Suhnun [d.854] stated that the Friday prayers are waived for the leper [28].

Such ethico-legal constructs are employed by jurists to ensure actions do not lead to reprehensible ends [29]. Dispensations for the leper demonstrate that although leprosy is not highly contagious, the mental well-being of the leper, as well as that of the general public, is equally worthy of consideration. Furthermore, keeping a physical

distance between the leper and the public also sends out a message of caution. By contrast, the other extreme would be to deny infectious diseases altogether – possibly leading to negligence in hygiene and increasing the risk of spreading contagious diseases. In relation to known infectious diseases like measles and polio, a nation could be divided into those who have been vaccinated and those who have not. Such division can give rise to fears of infections spreading between those that have not been immunised by vaccination.

The importance of avoiding causing harm to others can be seen from the teachings of Muhammad Rasulallah wherein individuals are taught to respect each other in mosques by avoiding bringing in foul smells. Ibn Abd al-Bar [d.1071] explained that some individuals who ate an onion would be asked to distance themselves as far as Al-Baqi cemetery [30]. One of the reasons for such distancing could be to avoid causing discomfort to the congregation. Reason would necessitate then that an individual could be asked to distance from the congregation for a number of reasons. Among the reasons could be that an individual suffers from an infectious disease or exhibits behaviour or symptoms and thereby causing fear or inconvenience to a congregation. Applying this reasoning to curb the spread of SARS-CoV-2, the Secretary-General of the Muslim World League Mohammed al-Issa highlights that *'The Islamic Sharia advises people whose mouths smell after eating to not go to communal prayer let alone if they were infected with a fatal virus which everybody has been warned about with no exceptions'* [31].

3.3 Autism in children

Based on the maxim of 'causing no harm', an argument made against vaccines is that they are believed to potentially cause autism in children. Hussain et al. [32] and Hotez [33] point out that a publication in 'The Lancet' by a former British doctor and researcher, Andrew Wakefield [34] is responsible for the belief that autism can be caused by the MMR vaccine. However, the British Medical Association ethics committee and the House of Commons Science and Technology Committee found Wakefield's conduct to be *'unethical'* and found *'equally strong evidence of failure and incompetence by the research ethics committee'* [35]. Furthermore, a conflict of interest was discovered whereby Wakefield had received funding from litigants against vaccine manufacturers [32]. The editor of The Lancet also retracted Wakefield's study declaring it *'utterly false'* and, consequently, the UK Medical Registry banned Wakefield from practising medicine in the UK [32].

Hussain et al. [32] argue that such *'demonisation of vaccines'* has spread through social media and television talk shows and have resulted in a drop in vaccination in some Western countries. Furthermore, Hussain et al. [32] describe Wakefield's claims to be *'the most damaging medical hoax in 100 years after bringing about outbreaks of diseases otherwise eradicated'*.

Subsequently, over 5,000 cases were raised with the National Vaccine Injury Compensation Program (NVICP) in which the cause of autism was believed to have been vaccination. These complaints led to the Omnibus Autism Proceeding in which six of the strongest cases were examined. The cases were heard by the Special Masters of the United States Court of Federal Claims, who in 2009, concluded that there was no link between vaccines and autism [36].

Additionally, Bukhari et al. [37] point out that the belief that autism is caused by vaccination is based on the use of a very small quantity of mercury and aluminium. The Children's Hospital of Philadelphia states that *'breast-fed infants ingest about 7 milligrams, formula-fed infants ingest about 38 milligrams, and infants who are fed soy formula ingest almost 117 milligrams of aluminium during the first six months of life'*. By contrast, *'infants receive about 4.4 milligram of aluminium in the first six months of life from vaccines'* [38].

Additionally, the OVG states that thimerosal had been used in vaccines as a preservative to stop the growth of bacteria and fungi but has been removed as a precaution since 1999 [39]. Rahman [40] highlights that in 2014, a study involving over a million children in Australia found that there was no evidence to show that thimerosal causes autism. Moreover, the American Academy of Paediatrics has compiled a comprehensive list of research on studies about the general safety of vaccines [41].

In terms of risks that vaccination may carry, the CDC [42] concedes the fact that although *'Vaccines are the best defence we have against infectious diseases ... no vaccine is actually 100% safe or effective for everyone because each person's body reacts to vaccines differently'*. The CDC highlight that *'serious side effects are very rare and occur in about 1 out of every 100,000 vaccinations and typically involve allergic reactions that can cause hives or difficulty breathing'* [42]. Regarding the Pfizer-BioNTech COVID-19 vaccine, studies involving 42,000 people indicate high efficacy without any serious side effects reported [43].

Vaccines today are believed to be the safest they have ever been and clinical trials are believed to be rigorously monitored by the FDA prior to approval [42]. The Joint Committee on Vaccination and Immunisation (JCVI) stated: '*Given the lack of evidence, the JCVI favours a precautionary approach, and does not currently advise Covid-19 vaccination in pregnancy*' [44]. The Medicines and Healthcare products Regulatory Agency also advised that '*Any person with a history of a significant allergic reaction to a vaccine, medicine or food (such as previous history of anaphylactoid reaction or those who have been advised to carry an adrenaline autoinjector) should not receive the Pfizer/BioNTech vaccine*' [45]. The Pfizer-BioNTech vaccine has also been added to the Vaccines Damage Payment Scheme and any adverse reactions experienced can be recorded for monitoring purposes via the Yellow Card Scheme [46]. The 'vaccine damage payment' scheme in the UK is designed to pay a £120,000 tax-free payment to individuals who are severely disabled as a result of vaccination [47].

Nevertheless, case studies do matter. One failed vaccination can affect a large number of families when they have witnessed a negative experience first-hand. For instance, if a child is affected by a vaccination directly or by coincidence, parents, family members, and friends may focus on the statistics related to those that are affected by vaccines rather than focus on the number of successful vaccinations. However, there appears to be a greater risk of the population being killed by an infectious disease than being seriously affected by a vaccine.

3.4 Concerns over vaccine contents

From the foregoing discussion, the importance of preventing harm to oneself and others is an established notion in Islamic jurisprudence. Nevertheless, before a form of treatment is promoted, Muslim jurists examine the details of the treatment to determine whether it is Shari'a-compliant. As such, Muslim jurists differ over which vaccines are Shari'a-compliant. Although subsections 3.4.1 and 3.4.2 discuss the ruling of gelatine and human cells in vaccines, the MHRA confirms that the Pfizer-BioNTech COVID-19 vaccine does not contain any components of animal origin. Likewise, no product used in the vaccine is derived from foetal cell lines [48].

3.4.1 Concerns over gelatine use in vaccines

Regarding vaccines, Muslims are concerned with the contents. These concerns include ensuring that vaccines

do not contain 'haram' ingredients, meaning ingredients prohibited in Shari'a law. However, classifying an ingredient may result in different scenarios. On the one hand, there is a possibility that all Muslim jurists unanimously agree that an ingredient is haram. Alternatively, there could exist a difference of opinion on whether an ingredient is halal or haram. Moreover, another layer that is added to the discussion is the degree of need – that is the repercussions that would follow if the ingredient was not used. If the need is shown to be extreme, then the impermissibility of the ingredient may be exempted under the circumstances and would be allowed for use in medication.

One such contentious ingredient is porcine gelatine or gelatine from an animal that was not slaughtered according to the criteria required to make the product 'halal' meaning permissible. Additionally, another factor with regard to allowing denatured porcine gelatine is the manner in which the vaccine is taken. Nasal sprays or oral vaccines may be viewed by some Muslims as resembling the act of consuming gelatine and, therefore, may observe greater caution. Other factors that are considered by Muslim jurists include the severity of a disease, the reproduction rate of a virus, and the effectiveness of vaccines. Furthermore, even if an ingredient like denatured porcine gelatine was permitted or made an exception due to lack of alternatives, unwanted health risks are still assessed before treatment is encouraged.

The European Council for Fatwa and Research (ECFR) allowed the use of trypsin given the fact that not using it would have major repercussions. Trace amounts of trypsin, an enzyme derived from pork pancreas, had been used in vaccines to help immunise children against polio [49]. In 2003, this issue was discussed at the 11th Ordinary Session of ECFR that was held in the Islamic Center (Stockholm, Sweden) under the presidency of Sheikh Yusuf al-Qaradawi, the President of the Council. The fatwa concluded that the vaccine could be used '*therapeutically and preventively*' and added that '*the prevention of its use would lead to major evil and destruction*' [50]. The inference that could be made from this fatwa is that the use of trypsin is haram but has been allowed due to the lack of an effective alternative. On the other hand, the discussion on denatured porcine gelatine differs in nature.

Whereas the starting point for the ECFR with regard to trypsin is haram, the starting point of denatured porcine gelatine depends on different points of view. On the one hand, porcine gelatine is viewed as haram whereas, on

the other, denatured porcine gelatine is viewed as halal. In the latter case, there is no question of need or circumstances because the ingredient is regarded to be permissible ab initio. In 1995, in the 8th Medical Fiqh Seminars organised by the Islamic Organization for Medical Sciences Kuwait, clarification was provided that gelatine and pig fat are permissible when their properties have been transformed [51]. This view was also reiterated at the 9th medical fiqh seminar [51] as well as at the 23rd Ordinary Session of the ECFR held in Sarajevo [50].

Moreover, in Kuwait 1995, WHO convened a seminar to discuss 'The judicially prohibited and impure substances in foodstuff and drugs'. 112 Muslim jurists and experts attended the seminar including Sayed Tantawi (the then grand mufti of Egypt), Mohammad Al-Habeeb Ben Al-Khojah (Secretary-General of the Islamic Fiqh Academy in Jeddah), Mufti Mohammad Taqi Uthmani (Head of the Judicial Council in Pakistan) as well as the late Ayatollah Sheikh Mohammad Mahdi Shamseddine (then Head of the Supreme Islamic Shiite Council in Lebanon) [52]. The conclusion was that *'The Gelatin [sic] formed as a result of the transformation of the bones, skin and tendons of a judicially impure animal is pure, and it is judicially permissible to eat'* [51]. Accordingly, vaccines containing denatured porcine gelatine was considered to be permissible. Although 'permissibility' was the starting point for the scholars at the abovementioned seminar, this view continues to be contentious [53]. Perhaps further evidence would help to clarify that complete transformation takes place. However, the ECFR put forward the argument that in order for gelatine to be permitted, a complete transformation is not required.

The ECFR fatwa alludes to the Islamic ruling that when *'water exceeds the amount of two qullas (a measure) it carries no filth'*. Bearing this maxim in mind, the IIFA declared that *'the very tiny amount of the added trypsin [assuming it was unlawful] is too little to have any effect, according to the rule, while filth exists in it'* [50]. The Islamic Fiqh Academy India also reiterated in their 14th fiqhi seminar that was held in 2004 that when gelatine transforms into a distinctly different substance from its parent substance, then it is permissible for use [54]. On this note, even vinegar, which is a chemical transformation in which ethanol is converted to acetic acid, can still contain trace amounts of alcohol [55] yet vinegar is permitted by Muslim jurists

3.4.2 Human cell strains in vaccine development

According to Olshansky and Hayflick [56], possibly over 4.5 billion cases of polio, measles, mumps, rubella, chickenpox, shingles, adenovirus, rabies and hepatitis A infections worldwide were averted by using the cell strain WI-38, saving 10.3 million lives. The cell line was created from a human foetal lung that was derived by Leonard Hayflick at the Wistar Institute in Philadelphia after a surgical abortion. A cell from the lung was then replicated to produce healthy and stable human cells to make vaccines. Similarly, the MRC-5 cell line was also taken from an abortion in 1966. With nearly 50 years passing, Dr Paul Offit [57], the director of the vaccine education center at the Children's Hospital of Philadelphia stated that *'There are perhaps nanograms of DNA fragments still found in the vaccine, perhaps billionths of a gram... You would find as much if you analyzed the fruits and vegetables you eat'*.

Despite the widespread benefit of the procedure used over nearly half a century ago, it continues to receive criticism. Although the abortion was elective, the consent to use cells in vaccine research was presumed. As such, this approach raises ethical concerns over using human cells without explicit consent and whether the use of vaccines containing newer generations of the cell is Shari'a-compliant.

In relation to the use of foetal cells, the Islamic jurisprudential maxim *'yughtafaru fi'l baqaa ma la yughtafaru fi'l ibtida'* may be applied [58]. The maxim means - that which was initially disallowed to commence may be permitted once commenced. This maxim means that an action may be prohibited, however, once the action has commenced, benefitting from the after-effects of the action is not prohibited. An application of this maxim can be found for instance in rulings pertaining to an individual intending to perform pilgrimage. Upon intending to become a 'muhrim' (pilgrim), hunting is prohibited. However, if one hunted first and then intended to become a pilgrim, the individual would still be permitted to slaughter and eat of the animal. Although it was prohibited for the individual to commence hunting after intending pilgrimage, consuming the meat after intending pilgrimage is permitted.

Likewise, another example can be found in Muhammad Rasulullah himself applying the rule. Muhammad Rasulullah himself was not permitted to receive charity. As such, any meat that was offered by way of charity was not permitted for him. On one occasion, Muhammad Rasulullah asked if there was food and he was informed that the only meat available was that which was given to a lady by way of charity. Muhammad Rasulullah

responded that the meat was given in charity to the lady but should this lady offer the meat now as a gift, then this would not be forbidden for him [59]. Applying this rule to vaccines, although the manner in which the foetal cells were derived to create the WI-38 and MRC-5 cell lines is questionable, the use of the reproduced cells would be permitted according to the maxim in focus.

This discussion around the use of gelatine and human cells challenge only the procedure of how vaccines are manufactured and do not challenge the permissibility of using vaccines per se i.e. vaccines are permissible provided that its contents are permissible. The next section explores arguments that view IM and oral vaccines as impermissible irrespective of their ingredients.

4. Arguments against intramuscular and oral vaccines

Several key arguments and criticisms have been levelled against IM and oral vaccines. These include the idea that humans are designed to naturally develop immunisation through natural means only; that breast milk is a safer alternative, and that IM and oral vaccines are dangerous. Each of these arguments will be discussed and critiqued in this section.

4.1 Developing immunity through natural means

The argument that humans require no intramuscular or oral vaccines is based on the idea that humans are designed to naturally develop immunisation against viruses without the need to resort to such artificial means [60]. The idea stems from the verse in the Qur'an: *'We have indeed created man in the best of moulds'* [61]. As such, Hamdan argues that the human body is believed to be *'miraculous in nature and more amazing than any scientific advancement that man can achieve'*. Accordingly, Hamdan implies that immunisation via IM or oral vaccines is to assume that the human body is not *'perfect'* [60]. Hamdan's interpretation of the Qur'an is that God has created humans perfectly. Hamdan claims that administering IM or oral vaccines implies that *'the body is not "perfect" enough to withstand infectious diseases'*. Furthermore, Hamdan adds that *'chances are that they will only disturb the system and introduce an imperfection'*. As an alternative, Hamdan argues that breast milk is the best form of vaccination.

4.2 Breast milk

Based on the Qur'an [62], Hamdan argues that breast milk for two complete years is the most beneficial substance for a baby. Breast milk contains essential nutrients and provides antibodies to strengthen the immune system to protect against diseases. Hamdan also recommends healthy and pure foods such as honey, black seed, dates, and olive oil.

Furthermore, Hamdan's main contention with vaccines appears to be that they contain toxic chemicals. These chemicals include formaldehyde, mercury (thimerosal), and aluminium phosphate, all of which Hamdan claims could accumulate within the body leading to cancer, neurological damage, and even death. In support of this view, Katme [63] argues that as long as one observes personal hygiene and consumes a healthy diet, the natural design of the body would destroy viruses.

Whilst breast milk appears to be the purest and the healthiest form of vaccination, it may not be possible for all babies. Moreover, breast milk itself may also transfer viruses. For instance, HIV and Hepatitis B could be transmitted via breast milk. Furthermore, not all babies may have the option of consuming healthy breast milk. On the other hand, Ebrahim [64] points out that although there are great benefits in breast milk, vaccination by injection provides additional protection. As for the use of toxic chemicals in vaccines, these chemicals are used in amounts that are known to not cause any serious harm. Three chemicals that are highlighted as being most harmful in vaccines include formaldehyde, thimerosal, and aluminium phosphate.

4.3 Dangerous chemicals

Formaldehyde is used to kill and inactivate germs and viruses. When a germ or a virus strain is used in a vaccine, it needs to be killed or weakened prior to adding it into the vaccine. For instance, in the polio vaccination, the poliovirus strains are inactivated using Formaldehyde (FA). According to a study by Nei et al. [65], *'low concentrations (0.01–0.1%) of formaldehyde are sufficient to induce formation of amyloid-like tau aggregates, which can induce apoptosis of both SH-SY5Y and hippocampal cells'*. However, after the creation process of the vaccination, only 0.02% FA or less may remain in the vaccine and that too in a liquid form known as formalin. Furthermore, a study by East Carolina University found that a single dose of 200 µg of formaldehyde *'in a model 2-month-old infant'* is *'completely removed from the site of injection within 30 min [sic]'* [66].

In relation to the mercury-based chemical thimerosal, the OVG [67] clarifies that it was present in the Swine Flu (H1N1) vaccine Pandemrix used between 2009-2011. However, the OVG declare that thimerosal is no longer found in most standard UK vaccines. According to a study by Pichichero et al. [68], thimerosal was found to clear from the blood in 30 days of even very small babies. Even though no evidence suggested that thimerosal caused any serious harm, it was removed from most standard vaccines in the UK, the US and Europe 'as a precaution' [69].

Lastly, to help strengthen and lengthen the immune response to vaccines as well as to slow down the release of the ingredients from a vaccine, aluminium phosphate is used. Aluminium is found in breast milk as well as formula milk for babies. According to the Oxford Vaccine Group (OVG) [67], 'In the UK, the highest dose of aluminium that babies receive in one go from vaccines is just under 1.5 milligrams (from the 6-in-1, PCV and MenB vaccines at 8 weeks and 16 weeks)'. This amount is not known to cause any serious harm.

Aside from the argument that humans are designed to develop immunisation through only natural means, and that the use of the above-mentioned chemicals may be harmful, another argument that is put forward is that vaccines may have been adulterated to cause infertility.

4.4 Infertility and depopulation

The Centers for Disease Control and Prevention (CDC) [70] has addressed concerns related to infertility stating that 'There is no current evidence that HPV vaccines cause reproductive problems in women'. The CDC also stated that there are a number of reasons for primary ovarian insufficiency (or POI), which is a condition in which the ovaries prematurely stop functioning before a woman is of age 40. The CDC [70] in collaboration with the Food and Drug Administration (FDA) has not found any proof that HPV vaccines cause POI. Pertaining to infertility, Al-Azhar University senior official Abbas Chouman also remarked, 'The whole world rejects such fatwas that polio vaccines cause infertility' [71].

Nevertheless, Katme argues that 'According to many scientific reports, there is additional concern that some vaccines cause infertility and are used for clandestine population control'. The origin of such beliefs perhaps originates from political tensions in Afghanistan, Pakistan, and Nigeria. Kennedy highlights that 'Hostility and suspicion towards polio campaigns in northern Nigeria and north-west Pakistan must be understood in

the context of broader political conflicts between marginalised groups - Muslims and Pashtuns respectively - and the federal state and their Western allies' [72]. In 2012, there were 223 reported cases of polio worldwide compared to 350,000 reported cases in 1988 [73]. According to the CDC [74], this rate had decreased by 99% by 2013 when polio had been eradicated from all save three countries: Afghanistan, Pakistan, and Nigeria. In 2014, of the 359 polio cases that were recorded worldwide, 306 were in Pakistan alone while the remaining cases were in Afghanistan, Nigeria, and Somalia [75].

Riaz et al. [49] highlight that 'instability and terrorism' have hampered the progress of healthcare owing to the fact that 'war-ravaged states are inaccessible, inhospitable, and breeding with fundamentalism and violence'. Kennedy also illustrates that the rise in vaccine hesitancy and refusal in Pakistan correlated with the frequency of drone attacks between 2004 and 2011 [72].

Mullah Fazlullah, the former Pakistani Taliban leader, began a campaign against immunisation. Consequently, two questions can be found on the South African based online fatwa site Ask-imam. Both questions had come from Pakistan in 2007 in relation to the ruling of polio vaccines. Mufti Ebrahim Desai responded that 'If medical experts regard taking polio vaccine to be necessary to prevent future occurrences, it will be permissible' [76]. Despite this fatwa, the Mujlisul Ulama of South Africa issued an alternative fatwa stating that vaccines containing any haram substance are impermissible. Moreover, the Mujlisul Ulama of South Africa added that even if such vaccines are required by the Saudi Arabian authorities for Hajj and Umra purposes, such vaccines are impermissible and going for hajj or umrah itself would be impermissible [64].

Furthermore, controversial news broke out in the Waziristan region of northwest Pakistan that the CIA had used a fake vaccination campaign to acquire DNA from Osama bin Laden's relatives. The spread of this news resulted in a violent boycott of polio vaccines [77], [72]. Some factions of the Taliban also believed that the vaccination campaign was a plot to kill or sterilise Muslims [77]. Nevertheless, The Islamic Emirate of Afghanistan supported the WHO and UNICEF's initiative for the eradication of polio [78].

In Nigeria, Ibrahim Shekarau, Governor of Kano State, refused the polio vaccine in the state believing it to be a Western Christian plot to try and reduce the Muslim population in Nigeria [79]. Shekarau commented that 'it

is lesser of two evils, to sacrifice two, three, four, five, even ten children (to polio) than allow hundreds of thousands or possibly millions of girl-children [sic] likely to be rendered infertile [81]. Datti Ahmed, a Kano-based physician who heads the Supreme Council for Sharia in Nigeria (SCSN), is quoted as saying in relation to polio vaccines that vaccines are *'corrupted and tainted by evildoers from America and their Western allies'*. Ahmed adds that *'We believe that modern-day Hitlers have deliberately adulterated the oral polio vaccines with anti-fertility drugs and ... viruses which are known to cause HIV and AIDS'* [80].

The vaccine boycott in northern Nigeria, as Jegede argues, must be understood in its historical and political context [81]. In the 1980s, under President Babangida's administration, the population policy was limited to four children per woman. As the polio vaccination campaign incidentally followed this policy, this resulted in suspicions of depopulation. In addition to this policy, the attitude of the Nigerian population towards door-to-door immunisation was viewed as an act of aggression against them. Their suspicions were related to reasons as to why they were being given free vaccination instead of the more basic medicines and treatment they required [82]. Moreover, the different Nigerian states have different colonial experiences, which has resulted in different attitudes to medicine in Nigeria [81].

This section highlighted three main arguments against using IM and oral vaccines. These include the idea that breast milk is the most natural way to develop immunisation against viruses; IM and oral vaccines are a form of medical assault; and that some forms of vaccines are adulterated to reduce the Muslim population. Counter-arguments suggest that IM and oral vaccines provide additional protection; the ingredients used in such vaccines are safe; and that the fear of vaccines being used for population control is borne in the context of political conflict and as such, should not be generalised – as incorrect information and rumours could have serious consequences on vaccine uptake as well as give rise to outbreaks of disease in such affected areas. Bearing these arguments in mind, the next section provides advice and recommendations for British muftis and medical professionals in relation to the Pfizer-BioNTech COVID-19 vaccine as well as other routine vaccines.

5. Discussion for the British context

British muftis and medical professionals in the UK now face the challenge of advising British Muslims in relation to vaccination against various diseases including

COVID-19 now that the Pfizer-BioNTech COVID-19 vaccine is available. Owing to the fact that the fatwas on vaccination date back to the 1970s, Muslim jurists are required to critically analyse and apply a fatwa that is in the best interest of not only British Muslims but of all who reside in the UK as well as the rest of the world. British muftis and medical professionals in the UK must bear in mind that the member states of the OIC support vaccination.

5.1 Summary of arguments

To summarise the spectrum of views on vaccination, the discussion begins with silence on the matter since vaccination did not exist during the time of Muhammad Rasulullah. As such, vaccination is a matter of 'legal discretion', whereby a plurality of opinions is inevitable. For instance, another bioethical issue that requires legal discretion is organ donation. Seven different opinions are found in relation to organ donation, as such, the manner in which an issue is argued depends on who is interpreting it [83]. Nevertheless, in relation to vaccination and pandemics, collective deliberations such as those at conferences held by the IIFA, ECFR, and other Islamic organisations led to *ijtihad jama'i* meaning 'collective legal reasoning' [84]. *Ijtihad jama'i* is a helpful approach to reach decisions related to bioethics and is more likely to have an impact to clarify, permit, and legalise medical treatments. For instance, the IIFA of Jeddah in 1988 led to the Saudi Government supporting organ transplantation [94]. As the issue of vaccination is absent in classical Islamic texts, a difference of opinion exists.

On the one hand, vaccination may be viewed as a form of 'medical assault' and is believed to cause more harm than good. According to this perspective, vaccination should be avoided altogether and breast milk and other natural substances are to be used to strengthen the immune system. On the other hand, vaccination is not viewed negatively, however, based on theological concerns there are reservations. Such theological concerns include the notion that IM and oral vaccines are unnatural and bring into question the design of the human immune system. The impact of these arguments are not yet fully known or whether or not they are causing a rise in vaccine hesitancy among British Muslims. However, as they have gained attention to a degree, awareness of these theological arguments could help make informed decisions with regard to vaccine hesitancy among British Muslims. Nevertheless, the 57 Muslim states that form the OIC advise seeking immunisation against viruses through IM and oral vaccines.

The use of porcine gelatine in the nasal flu spray and other vaccines warrant attention due to their contents. The Pfizer-BioNTech COVID-19 vaccine, on the other hand, as stated by the Medicines and Healthcare products Agency, 'does not contain any components of animal origin'. [85] As such, at the time of writing, this vaccine was not regarded as 'haram' by several British muftis of Hanafi Deobandi affiliation [86], rather, it was considered 'halal' [87][88][89].

Nevertheless, in relation to other vaccines, the severity of porcine gelatine is intensified if the vaccine is consumed orally or used as a nasal spray. However, the reservation is slightly lower if injected as in the case of Zostavax shingles vaccine - owing to the resemblance of consuming gelatine in nasal sprays and oral vaccines. However, British Muslims may avoid the MMRVaxPro vaccine, which is gelatine based, because the non-gelatine based Priorix is available in the UK [90]. As for vaccines that are gelatine based but have no alternative, British muftis have permitted their use if there is a fear of contracting diseases [91]. However, not all Muslims agree that denatured porcine gelatine is prohibited. As such, not all Muslims seek an alternative vaccine. Another factor that may contribute to vaccine hesitancy could be due to individuals not viewing certain diseases as threatening as measles or COVID-19. For instance, vaccination for the seasonal flu and rotavirus may not be viewed as necessary as receiving vaccination against MMR or shingles.

Given the spectrum of views on vaccination, there is no compulsion in Islam nor by the UK government as of January 2021, to be vaccinated. The NHS Leaflet 'Vaccines and porcine gelatine' (2016) reads '*The final decision about whether or not to be vaccinated, or have your child vaccinated, is yours*'. On the other hand, British Muslims may choose to be vaccinated themselves or have vaccinated those in their care. Abundant scientific evidence exists that suggests that vaccines work. Moreover, a plethora of fatwas exists, which permit and encourage the use of vaccines. Protecting oneself and others by raising herd immunity may be viewed as a meritorious act based on the Qur'an, which states that '*anyone who saves a life, it is as though he has saved the whole of humanity*' [92].

5.2 Vulnerable Muslims

The vulnerable group include individuals that are influenced by the arguments against IM and oral vaccines. On the one hand, this group sees the benefits of

vaccination yet is discouraged from vaccination based on notions of gelatine being haram or that vaccination is adulterated to cause harm. Muhammad Rasulullah explained that 'A Muslim is one by whose hands and tongues other people stay safe' [93]. Accuracy of information is, therefore, vital. British muftis are urged to consider the context of fatwas and campaigns that are against vaccination. A fatwa on vaccination needs to be in light of the way vaccination is approved, monitored, and administered in the UK. Moreover, for the British context, a fatwa itself needs to be presented clearly as a fatwa to avoid confusing it with other forms of guidance documents [94].

The chances of an individual dying from infectious disease are much greater than the chances of being seriously affected by a vaccine. On this note, British muftis are reminded of the value of life according to the Qur'an, which states that '*whoever kills another person ... it is as though he has killed the whole of humanity*' [92]. The late Saudi Sheikh Bin Baz compared the risk of vaccination to circumcision. The latter is not a medical necessity and yet carries the risk of serious complications. Bin Baz argues that the temporary pain and discomfort felt by a circumcised boy is outweighed by other benefits. Irrespective of the pros and cons of vaccination, as of 2021, no law in the UK states that vaccination is compulsory [95]. As such, British Muslims are advised to make an informed decision regarding vaccination for themselves as well as for those for whose health care they are responsible.

6. Concluding remarks

The Pfizer-BioNTech COVID-19 vaccine could be an effective treatment against SARS-CoV-2 and part of the solution to COVID-19. At the time of writing, the vaccine was not known to contain any haram ingredients or cause any serious side-effects. On the other hand, the vaccine has shown high efficacy based on trial studies and as such, bearing in mind that according to the Qur'anic value - saving one life is to save all of humanity - this vaccine has been considered to be halal and appears to be a solution. This vaccine may allow British Muslims to once again socialise safely, conduct regular Friday prayers at the mosques, and continue to attend the Hajj and Umrah.

The arguments made for and against vaccines discussed in this article are not exhaustive. The theological arguments made in favour of vaccines are made by renowned Muslim jurists. Moreover, vaccination programs are endorsed and implemented by the 57

member states of the Organisation of Islamic Cooperation. The theological arguments made against vaccines, on the other hand, appear to originate from non-Jurists and such arguments have been noted to spread in parts of the Muslim population around the world. Given the negative impact of political strife in Afghanistan, northwest Pakistan, and northern Nigeria, arguments made against vaccines in these regions need to be examined within their contexts.

Bearing this information in mind, British muftis and Muslim faith leaders are advised to have discussions on vaccination with British Muslims by being informed of the existing literature of the fatwas on vaccines. Healthcare professionals, Muslim and non-Muslim, need to be aware of the impact the Islamic faith has on Muslim patients with regard to the decision-making process to inoculate against COVID-19. The information provided in this article is aimed to help deliver appropriate health care advice to Muslims in a culturally sensitive manner. As for the policy makers, the NHS and PHE, the nuances in this article in relation to the gelatine and other contentious ingredients used in vaccines need to be noted to help manufacture and provide suitable vaccines for Muslim communities in the U.K. More data from trials that are representative of ethnic populations could be made more transparent to help increase trust and more informed decision-making. Additionally, there is a need for closer consultation by policy makers with the growing body of Muslim scholarly and medical organisations that are increasingly involved in educating the British Muslim public.

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