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## Editorial

# COVID-19 and the scaled-down 2020 Hajj Pilgrimage—Decisive, logical and prudent decision making by Saudi authorities overcomes pre-Hajj public health concerns



## Introduction

The abrupt appearance of SARS-CoV-2 as a novel lethal zoonotic pathogen causing COVID-19 disease in humans in late December 2019 (WHO, 2020), and its explosive global spread (Hui et al., 2020) caught health authorities worldwide by surprise and exposed the ill-preparedness of global public health systems to deal with the appearance of a new pathogen. Apart from generic prevention and control issues of public health and lockdown measures to limit epidemic spread, specific issues of Mass Gathering sporting and religious events came under specific spotlight (Alzahrani et al., 2020; Memish et al., 2020; Baloch et al., 2020; McCloskey et al., 2020; Petersen et al., 2020b).

Mass gathering events present important health challenges related to the public health services and health of the host country population, the attendees and their home countries (Memish et al., 2014; Memish et al., 2019). The 2009 Hajj was held during the 2009 H1N1 influenza pandemic and focused attention on developing Mass Gatherings Medicine as a formal discipline, resulting in the formation of a coalition of global academic and public health faculty and virtual WHO mass gathering collaborating centres to guide development of, and update, optimal public health and medical prevention and treatment guidelines at mass gathering events (Memish et al., 2014).

## Mass gathering events and COVID-19

WHO with global mass gathering partners, developed comprehensive key recommendations for COVID-19, and since end of February 2020, there was a stepwise increase in cancellation, temporary suspension or postponement of international and national religious, sporting, musical, and other mass gatherings (WHO, 2020b; McCloskey et al., 2020; Petersen, McCloskey et al., 2020a). Apart from focusing on major sporting events, global attention has been on Saudi Arabia and the Umrah and Hajj pilgrimages. Approximately 10 million people from 182 countries travel to Saudi Arabia annually for the Hajj and Umrah pilgrimages (Memish et al., 2014, 2019). The Umrah pilgrimage can be performed anytime during the year, and thousands of pilgrims from all continents arrive in Saudi Arabia every month. Saudi Arabia with its extensive experience and commitment to pilgrim safety and wellbeing, was quick off the mark and on February 27th,

2020, restricted inbound flights and local and international pilgrims were prevented from travelling to Makkah and Madinah for the Umrah pilgrimage.

## Social and economic impacts of the Hajj and COVID-19

For the July 2020 Hajj, approximately 2.4 million pilgrims were expected in Saudi Arabia (Saudi Ministry of Hajj and Umrah, 2020), but they were made aware that the growing COVID-19 pandemic might put their plans into disarray. The Saudi Ministry of Health made regular announcements that the format of the Hajj 2020 was being debated and evaluated based on COVID-19 situation globally and domestically. Several countries from where large numbers of Muslim pilgrims originate (Malaysia, Indonesia, India and Singapore) subsequently announced that they were barring their pilgrims from attending the 2020 Hajj. These cancellations were anticipated to have major social and economic impacts on national economies, individual livelihoods and public morale. The Umrah and Hajj pilgrimages together generate over \$12 billion annually for businesses and the economy, thus limiting or cancelling the Hajj would come at a huge cost.

## Modelling of COVID-19 and public health impact at Hajj 2020

Alzahrani et al. (2020), in their Autoregressive Integrated Moving Average (ARIMA) model, had forecast the expected daily number of COVID-19 cases in Saudi Arabia over ensuing weeks before the 2020 Hajj. They forecasted that the number of COVID-19 cases in Saudi Arabia would continue growing and could reach up to 7,668 new cases per day, with over 127,129 cumulative daily cases in a matter of weeks if stringent precautionary and control measures were not implemented to limit the spread of COVID-19. They suggested that the Saudi authorities faced very difficult decisions regarding the 2020 Hajj Pilgrimage which was scheduled for the last week of July 2020 and they had two options: cancellation of the Hajj or implementation of extreme preventive and control measures in the cities of Mecca and Madinah required to avoid a COVID-19 catastrophe of widespread national and international spread (Alzahrani et al., 2020).

With the global spread of COVID-19 showing no signs of abating, the national and global public health impact, risk to livelihoods and economic costs, religious rulings and sensitivities,

pros and cons of holding the Hajj were discussed and debated leading to the final prudent decision by the Saudi government to hold a scaled-down 2020 Hajj (Atique and Jumullah, 2020; Al Saidu et al., 2020; Baloch et al., 2020; Ebrahim & Memish, 2020; McCloskey et al., 2020; Memish et al., 2020a). Of public health importance were the close proximity in which pilgrims interacted and lived during the Hajj; respiratory tract infections are known to transmit easily during the Hajj; an estimated 40% of pilgrims are elderly and many have comorbid conditions increasing the risk of COVID-19 associate mortality; two-thirds of pilgrims originate from countries with weak public health capabilities and COVID-19 spread in either direction was to be avoided at all costs. To introduce and maintain social distancing measures and a safe public health environment for the Hajj rites to be completed by all pilgrims had become a major public health challenge and seemed near impossible. Muslim religious leaders and ethicists were unified in concluding that the preservation of life during pandemics takes priority over practicing religious rituals, and that a small number of people nominally perform the Hajj under strict supervision and public health guidance. Islamic tradition relates to a prophetic saying ‘if you hear of an outbreak of a plague in a land, do not enter it; but if that epidemic breaks out in a place where people are residing, do not leave that place.’ The correlate being, preserving the lives of pilgrims and people of the host country and countries from which pilgrims originate, is more important than the pilgrimage itself.

### Hajj 2020-decisive political and public health action

In early June 2020, after careful consideration, the Saudi government took decisive, logical, logistical and prudent decisions (Saudi Ministry of Hajj and Umrah, 2020) to overcome these pre-Hajj nightmares of public health, political, economic and religious concerns. For the first time since the Kingdom of Saudi Arabia was formed in 1932, the decision to bar pilgrims arriving in Saudi Arabia from foreign countries was made. The 2020 Hajj was scaled down considerably, and participation for Hajj rituals was restricted to only 1000 people with a negative COVID-19 test, residing within the Kingdom of which ‘foreign’ residents would comprise two-thirds of all selected pilgrims from a pool of local workers, health care workers and security personnel, – especially those who had recovered from COVID-19. Those aged 65 years and over and those with comorbid conditions would be barred. While all holy sites would remain open, adequate physical distancing and disinfection measures were put in place with oversight and assistance at regular intervals during the pilgrim’s journey. Wearing masks was mandatory, and pilgrims would be subject to temperature checks and placed in quarantine if required. All pilgrims were given well thought out kits that include disinfectants, masks, a prayer rug, the ihram (a seamless white garment required to be worn by pilgrims), sterilised pebbles for the stoning ritual at Jamaraat. Throughout the duration of the Hajj, the pilgrims would have to keep a social distance of one and a half meters and were guided by well laid out markers and Hajj coordinators. No pilgrims would be allowed to touch the Kaaba or kiss the black stone at its corner-both of which are regular customs during the Hajj. Pilgrims would also have to be quarantined for 14 days after the pilgrimage.

The Hajj 2020 was a public health success and ended on Monday 3rd August 2020. The decisive, logical and prudent decision making by Saudi authorities which enabled the pre-Hajj nightmare of public health, political, economic and religious concerns to be overcome. The successful completion of the 2020 Hajj is a major tribute to the leadership and commitment of the Saudi authorities, and it reflects their extensive experience of organising the annual Hajj pilgrimage, and continued commitment to improving public health issues related to mass gatherings events. The decisive actions, public health

preparedness and strict implementation of public health prevention and intervention measures, pre-Hajj, during Hajj and post-Hajj, serve as exemplars for other mass gathering religious and sporting events.

### Previous scaled-down Hajj pilgrimages

The 2020 Hajj was not the first time the Hajj has been scaled down. Historically, the Hajj has been scaled down several times before due to infectious disease outbreaks. Between 1830 and 1930, there were at least 27 cholera outbreaks among pilgrims in Mecca (Peters, 1994). Massive cholera outbreaks throughout the 19th century resulted in the suspension of Hajj in 1837 and 1846. The cholera outbreak in 1865 in Saudi Arabia led to the establishment of quarantine ports to limit the spread of the disease during Hajj. Since Saudi Arabia’s foundation in 1932 the Hajj has never been cancelled and has not missed any year.

### Conclusions

The ongoing SARS-CoV-2 pandemic, yet once again, highlights the continuing threat of new emerging infectious diseases with epidemic potential, including the persistent threat of the Middle East Respiratory Syndrome (MERS) (Periman et al., 2020; Memish et al., 2020b), to global health security. As of 2nd August 2020, there have been 17,660,523 confirmed cases of COVID-19 worldwide, including 275,905 cases from Saudi Arabia. reported to WHO (2020a). The WHO has emphasized the importance and need for collaborative and committed public health efforts over the longer term to achieve COVID-19 control globally. Regularly recurring mass gathering events should be used as important global sentinel surveillance platforms and opportunities for the conduct of research and evaluation of a range of global public health issues (Shafi et al., 2016; Memish et al. 2019). Increased investments in the fields of mass gathering medicine and ‘One-Human–Environmental-Animal-Health’ programs (Zumla et al., 2016a, b) are required for pro-active surveillance, and development of accurate prevention, management, and control guidelines to protect the health of attendees of mass gatherings and of host country populations.

### Author declarations/Conflicts of interest

All authors are members and founders of the Global Centre for Mass Gatherings Medicine. Dr Shuja Shafi is director of Mass Gatherings and Global Health Network, London, UK. All authors declare no conflicts of interest.

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