



# Is the Saudi public aware of Middle East respiratory syndrome?



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Received 9 July 2015; received in revised form 21 September 2015; accepted 5 October 2015

## KEYWORDS

Coronavirus;  
MERS;  
Public awareness;  
Saudi Arabia

**Summary** To limit the spread of Middle East respiratory syndrome coronavirus (MERS-CoV) in Saudi Arabia, the Ministry of Health tried to raise public awareness using different public campaigns. We aimed to measure public awareness of MERS in Saudi Arabia.

A cross-sectional study was conducted between May and June 2014 using a newly designed Arabic questionnaire that was distributed and completed online.

We analyzed the response of 1149 respondents across Saudi Arabia. We found that 97% of the participants were aware of MERS. In addition, 72% realized that coughing and sneezing could spread the infection. Furthermore, 83% thought that some patients with MERS could be cured. Moreover, 62% knew that no vaccine can prevent the disease. However, only 36% realized that taking antibiotics will not stop the infection, and only 41% recognized that no medication has yet been manufactured to treat it. Regarding protection measures, 74% used hand sanitizers, 43% avoided crowded places, and 11% wore masks in public places. Moreover, only 47% knew that bats and camels are the primary source of the virus. As anticipated, this level of awareness varied between the different categories of the studied population. Female, married, older, and more educated participants were significantly more knowledgeable about the disease.

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Public awareness of MERS is generally sufficient. However, some false beliefs about treatment were fairly common. In addition, almost half of the population remains unaware that bats and camels are the most likely sources of the virus.

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## Introduction

The first case of Middle East respiratory syndrome (MERS) was reported in Saudi Arabia in June 2012 [1]. Since then, 1564 cases of MERS have been reported through the 11th of September 2015, with a fatality rate of approximately 35% [2]. The disease is caused by a novel *betacoronavirus* of the *Coronaviridae* family [3]. Initially, scientists suspected that the virus might be transmitted from bats [4,5]. However, more recent studies have shown a strong link between the virus and camels [6–8]. It is now generally accepted that both species serve as natural reservoirs for this virus [9].

The modes of transmission between animals and humans and humans-to-humans remain unclear [10]. However, it is believed that close contact with infected individuals causes transmission. According to the WHO, a large number of MERS cases seem to occur among health care workers, secondary to close contact with primary infected patients [11].

Flu like symptoms and dyspnea are among the signs and symptoms of the initial presentation. Gastrointestinal tract disturbances have also been reported in some patients [12]. In severe cases, acute respiratory failure, acute kidney injury, lymphocytopenia, thrombocytopenia, coagulopathy, and multi-organ failure have been described [12]. These critical presentations are usually associated with senior and/or comorbid patients [13].

To limit the spread of the infection, the Ministry of Health quickly turned to public awareness campaigns to educate the community regarding the possible modes of transmission of this novel virus. The campaign was one of the largest campaigns launched by the Ministry of Health. It included television advertisements that introduced the virus to the public and discussed ways to avoid contracting the infection. It also used text messages to update the public on new developments; these were sent via mobile phones and different social media platforms.

As public awareness is highly important to controlling the disease, this study aimed to measure public awareness toward MERS in Saudi Arabia.

## Materials and methods

Ethical approval was obtained from the Institutional Review Board at King Abdullah Medical International Research Centre, National Guard Health affairs, Riyadh, Saudi Arabia. A cross-sectional study was conducted between May and June 2014. The study target population was current residents of Saudi Arabia, regardless of their nationality.

An English questionnaire was designed and translated to Arabic. The Arabic version was pretested on students of King Saud Bin Abdulaziz University for Health Sciences. The questionnaire was uploaded as a Google document and distributed to the Twitter accounts of Saudi celebrities who have more than 1 million followers. The celebrities included writers, politicians, TV presenters, sports personnel, and religious leaders. The celebrities were contacted via email, and nearly all of them agreed to post the survey link. Additionally, they encouraged their followers to participate.

The questionnaire included a section on demographic and socioeconomic factors. However, personal information of the participants, such as names and full addresses, was not gathered, making the data anonymous. Another section of the survey covered general awareness of the infection and protective measures, while the final section addressed knowledge of the disease epidemiology.

Because there were no previous studies in Saudi Arabia regarding MERS awareness among the general population, a conservative choice of 50% awareness was used to determine the sample size. Consequently, a sample of 1066 subjects was needed to calculate a 95% confidence interval with a margin of error of 3%.

Every day, 200 questionnaires were selected randomly and added to the dataset. This systematic

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