



Analyzing the Spread of COVID-19 in Saudi Arabia and Controlling Disease Strategies

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Abstract

Background: A novel COVID-19 has been recently identified as the severe acute respiratory illness COVID-19 which has accounted for more than 300,000 infected people worldwide. However, the world health organization WHO announced that the disease represents a serious issue to worldwide public health.

Aim: The study aims at reviewing and discussing current knowledge on COVID-19 in Saudi Arabia including diagnosis, causes, and methods of controlling coronavirus disease.

Method and Design: Pooled design is adopted, and 562 confirmed COVID-19 cases are included in the analysis reported between March 2nd, 2020 to March 23rd, 2020.

Results: The result showed that the majority of the identified cases resulted from contact tracing and returning from different countries. The study provides additional evidence for an effective method used by the Saudi Arabia Health Ministry (MOH) to help patients recover from COVID-19.

Conclusion: COVID-19 evidence to show several signs and symptoms such as fever, dry cough and respiratory syndrome. However, several methods used in health sector in order to monitor and control the disease.

Keywords: COVID-19; Pathogenesis; Consequences and controlling strategies

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Introduction

In late 2019, an outbreak of severe acute respiratory syndrome respiratory illness (Coronavirus Disease, COVID-19) was reported in patients from China's, Hubei Province in Wuhan city. In the following few months, COVID-19 spread to many countries, such as Europe, Asia, Africa and America, where it had dramatic impact on personal, social and economic life [1]. Since the COVID-19 outbreak continues to evolve, substantial knowledge gaps remain [2,3], and physicians and scientists have begun identifying the causes of COVID-19, which was firstly diagnosed like influenza virus as they both cause respiratory disease [4]. However, studies characterized COVID-19 from clinical conditions by respiratory failure that necessitates mechanical ventilation and support in an Intensive Care Unit (ICU), to multi organ and systemic manifestations in terms of sepsis, septic shock, and Multiple Organ Dysfunction Syndromes (MODS), fever, malaise, dry cough and dyspnea [5,6].

Coronavirus is found widely in humans and other mammals [7,8]. However, World Health Organization (WHO) reported the outbreak of the novel Coronavirus COVID-19 as a public health emergency of international concern and put in place a series of temporary recommendations [9,10]. Therefore, several countries developed plans to prevent, detect and control the public health emergencies [11].

Saudi Arabia is one of those countries that made sustainable efforts to strengthen their capacities to detect and control such emergencies. After the first confirmed case in Saudi Arabia had been reported on 2nd March, and several other cases also reported, several decisions were announced to detect and control the COVID-19 in the country such as isolation and quarantine method, temperature screen measures, closing borders in addition to suspending local and international flights. Furthermore, Saudi Arabia has adopted great efforts and several clinical and other strategies to control COVID-19 which can be divided into surveillance and containment measures. These

include identifying primary signs such as identifying a history of travel abroad as well as close physical contact in the health care places in the past 14 days prior to symptoms. On the other hand, other clinical strategies were implemented for identifying COVID-19 included medical consults identifications, tracing social interactions with patient with laboratory-confirmed COVID-19, and to enhance surveillance among patient groups (such as patient diagnosed influenza-illness, fever, coughing etc.), as well as allowing clinician discretion test based on clinical suspicion [12]. In addition to the strategies mentioned above, the Ministry of Health in Saudi Arabia, adopted several ways to control spreading COVID-19 in the country, such as patient isolation, active monitoring of contact, border controls, stopping local and international flights as well as organized multi education and precaution sessions through effective social-media and ministry website. Although great efforts have been made by the Ministry of Health in Saudi Arabia, further COVID-19 cases were identified and their number increased by time. On March 23rd, 2020, the Ministry of Health announced 562 cases classified and confirmed cases of COVID-19 in Saudi Arabia. Hence, the current report aims at analyzing the 562 COVID-19 cases detected and classified by the ministry of health MOH in Saudi Arabia. The analyses identify the causes of COVID-19 among the 562 patients, their characteristics and ministry strategies to control the patient's status.

Methods

The current study obtained data through pooled analysis which was shared by the Saudi Arabia Health Ministry. The number of cases was reported by the Ministry of health MOH in Saudi Arabia, as well as in the daily newspapers published in Saudi Arabia such as Okaz and Arab News [13,14]. Five sixty two COVID-19 cases were identified, and information was collected from several confirmed documented reports by ministry of health MOH in Saudi Arabia. The study covered the reports from the first identified COVID-19 case in Saudi Arabia which was on March 2nd, 2020 to March 23rd, 2020.

Results

As of March 23rd, a total of 562 COVID-19 patients have been confirmed cases in Saudi Arabia. Ministry of health MOH reports identified three main causes of the COVID-19 cases in Saudi Arabia. Firstly came imported cases who came back to Saudi Arabia from other countries; secondly: Contact tracing also identified multi cases; and lastly: Medical practitioners were suspected COVID-19 patients. On the other hands, MOH implemented several containment ways to control and cure those cases, such as patient isolation, patient quarantine, active monitoring of the patients as well as other clinical protocols. In this regard, the containment ways used by the ministry of health MOH in Saudi Arabia were effective in recovering cases as the report evidenced that 19 cases were identified as recovering cases. Differences in the number of the identified cases detected through the different cause, characteristics and containment methods were analyzed using descriptive statistics according to the ministry of health MOH reports in Saudi Arabia as shown in Table 1. Among the 562 identified COVID-19 patients in Saudi Arabia, the average patient age was (43), (533) 94.84% cases identified as adults and (29) 5.16% children cases. The majority of the patients (296) 52.67% were female and (266) 47.33% were males. Among the 562 patients (349) 62.09% were Saudi and (213) 37.01% were Non-Saudi. Most of the patients were returning from other countries 312 (55.52%), the other cases resulted from contact tracing or transmissions (189) 33.63%; and (5) 0.89% cases identified at general practitioners' clinics as

Table 1: Descriptive Statistics of the characteristics of COVID-19 patients (562).

Characteristics	Number	Percentage
Gender		
Male	266	0.4733
Female	296	0.5267
Age		
Adult	533	0.9484
Child	29	0.0516
Nationality		
Saudian	349	0.6209
Non-Saudian	213	0.3701
Primary Detection Method		
Imported Cases	312	0.5552
Local Transmissions	189	0.3363
Clinical Practice Suspect	5	0.0089
Others	56	0.0996

they have been infected by the identified COVID-19 cases and the remaining cases are under investigations (56) 9.96%. Nineteen cases were identified as recovering cases and no deaths have been reported up to date. It can be concluded that the imported cases identified contributed approximately more than 50% of COVID-19 patients. However, all the COVID-19 cases were monitored and assigned to patient isolation and quarantine to recover from the Coronavirus disease COVID-19.

Discussion

The current study reported a cohort of confirmed 562 COVID-19 patients. All patients were admitted to the designated hospitals in Saudi Arabia. The information and data from the reports were analyzed in order to build and inform readiness and response plans for controlling the outbreak of COVID-19 in Saudi Arabia. However, from the reports mentioned in the result section, it is shown that 19 cases recovered from the COVID-19 and they have been controlled due to the effective methods used by MOH in Saudi Arabia, which evidenced that the development and preparedness plans in Saudi Arabia have effectively contributed to detecting and recovering cases. That would be due to the application of lessons learned from the previous experiences such as Middle East respiratory syndrome MERS-COV and H1N1 influenza as well as dealing with infectious disease during Omrah and Haj seasons as the country is used to hosting more than 1000,000 to 3000,000 within a short time. Furthermore, the early steps made by the Saudi government may have strengthened their capacity to detect and control the identified cases as soon as they occur and consequently help the cases to recover. Additionally, the availability of essential health services at the Saudi cities and regions has increased the ability of the country to detect the COVID-19 cases during the earliest stages. The importance of early detection has been evidenced by WHO, that confirmed operational readiness for emergencies will allow a timely, effective and efficient response [15].

The findings of the current study are consistent with those of other reports that have confirmed adults are more likely to be infected with a COVID-19 than young people [16] supported that the age of 72% of the Singapore identified COVID-19 cases ranged from 30 to 59 [17] proposed possible differences such as children having

higher levels of antibodies against viruses and different responses from their developing immune systems. Furthermore, World health organization WHO suggested that the older people are at a higher risk of getting severe COVID-19 disease. World Health Organization WHO (2020) also supported that a very small proportion of those aged less than 19 years old in China have developed severe or critical disease. Therefore, the different results in the current study are due to these differences and consequently support other reports finding. As for gender level, the current study shows that identified female cases are more than male cases. The reason behind that may be due to the fact that the most identified cases in the current study have resulted from local transmissions as well as imported cases, and that could be the reason, as those people lived or socially interacted with each other.

Another finding also highlighted in this report is that more than half of the identified cases are Saudi citizens returning from other countries where they socially interacted with people there, and that could be the reason for the increasing number of COVID-19 cases. Finally, the result shows that the highest level of the identified cases is for those people returning from other countries, and that may increase the number of COVID-19 cases in Saudi Arabia. However, the findings of the current study supports the MOH assessments, as the ministry keeps inviting people to use appropriate health services and providing care in the health and non-health settings as well as giving recommendations to people to be isolated and remain in quarantine from social activities, as these producers play a crucial role in reducing COVID-19 transmission. Therefore, it can be concluded that Saudi Arabia has implemented other activities to control the spread of COVID-19, such as reducing mixing between people to limit possible disease transmission as well as advising people to focus on personal hygiene.

This work is preliminary and subject to some limitations. As the COVID-19 is still in active outbreak response globally, the data included in this study are related to the first 23 days in March 2020 in Saudi Arabia, and some changes may happen as the situation may positively or negatively develop. Hence, another study should be reported for the next coming days and months. Another limitation is that the results reported are based on the data provided by the MOH in Saudi Arabia and other Saudi newspapers; therefore, future studies should collect data from the detected and recovered cases. Finally, as COVID-19 continues to spread globally, it is important to conduct comparative studies between countries in order to maximize the global COVID-19 knowledge and to formulate public health policies.

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