



# COVID-19 in Eastern Mediterranean Region Countries

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## Abstract

**Background:** COVID-19, as an emerging disease, is characterized by acute respiratory syndrome and caused by a coronavirus. The disease was first seen in China and gradually spread across other parts of the world.

**Objectives:** This study aimed to investigate COVID-19 characteristics in the Eastern Mediterranean Region.

**Methods:** The data of confirmed COVID-19 cases and related deaths in different countries were extracted from the reports of the World Health Organization and transferred to SPSS software, where final calculations were performed, and fatality rates were obtained.

**Results:** The highest rate of COVID-19 was observed in Iran, with 975951 confirmed cases. The highest COVID-19 death rate was also in Iran, with 48628 deaths, and the highest fatality rate was in Yemen with 29.12%.

**Conclusions:** The findings related to the confirmed cases of COVID-19, including death reports, showed that the quality and accuracy of reports were not the same in different countries, in different countries, including Iran, in which health equipment and facilities are comparable with developed countries. Observing social distancing and avoiding unnecessary travel are essential to prevent the disease from spreading across the Eastern Mediterranean region.

**Keywords:** COVID-19, Coronavirus, Eastern Mediterranean Region

## 1. Background

Several cases of acute respiratory syndrome with severe symptoms were reported in Wuhan, China, in late December 2019. Its probable origin was the seafood market, and the disease was caused by a coronavirus (i.e., COVID-19). During a short time, several similar cases were seen in other East Asian countries. After a while, it was seen in most parts of the world and became a pandemic. In March 2020, the World Health Organization (WHO) officially announced the COVID-19 as a pandemic (1-4).

Maintaining social distancing and strict traffic rules are important to prevent the transmission of the virus and reduce related mortalities (5). According to predictions, deaths from the disease in some populous countries may reach as many as one million (6).

## 2. Objectives

This study aimed to describe the epidemiology of COVID-19 in the Eastern Mediterranean Region.

## 3. Methods

This was an ecological study investigating COVID-19 characteristics in the Eastern Mediterranean Region. Information on the total number of confirmed COVID-19 cases and the total number of deaths due to COVID-19 by country was obtained from WHO reports (7-9) from the beginning of the pandemic to December 3, 2020. These data were transferred to SPSS software version 24, and fatality rates were calculated for each country using the following formula (10).

Case-fatality rate (percent) = No of individuals dying during a specified period after disease onset or diagnosis/No of the individuals diagnosed with the disease  $\times$  100

## 4. Results

According to the WHO classification, there were 22 countries in the region. The information on 21 countries (except for Palestine, which was not reported by the WHO) has been listed in Table 1. The total number of COVID-19 confirmed cases in Palestine was 101386, and the number of confirmed deaths due to the disease was 838. The overall fatality rate was 0.83%. The most populous country was

**Table 1.** Definite COVID-19 Cases, Confirmed Deaths due to the Disease, and Case-fatality Rates in the Eastern Mediterranean Region's Countries

Country	Population	Total COVID-19 Cases	Total COVID-19-Related Deaths	Case Fatality Rate
Iran	80227000	975951	48628	4.98
Iraq	37203000	554767	12306	2.22
Pakistan	193203000	43311	8166	18.85
Morocco	35277000	359844	5915	1.64
Saudi Arabia	32276000	357623	5907	1.65
Jordan	9456000	223617	2802	1.25
Kuwait	4053000	142992	881	.62
Emirate	9270000	170149	576	.34
Qatar	2570000	139001	238	.17
Lebanon	6007000	129414	1033	.80
Oman	4425000	123908	1430	1.15
Egypt	95689000	116303	6666	5.73
Tunisia	11403000	96769	325	.34
Bahrain	1425000	87137	341	.39
Libya	6293000	83417	1196	1.43
Afghanis	34656000	46717	1795	3.84
Sudan	39579000	18254	1265	6.93
Syrian	18430000	7973	422	5.29
Djibouti	942000	5680	61	1.07
Somalia	14318000	4451	121	2.72
Yemen	27584000	2081	606	29.12

Pakistan with 193203000, and the least populous was Djibouti with 942000. The highest number of deceased belonged to Iran with 48628 deaths, and the lowest was related to Djibouti with 61 deaths. The highest number of confirmed COVID-19 patients was reported from Iran with 975951 cases, and the lowest was related to Yemen with 2081 cases. The highest and lowest case-fatality rates were recorded in Yemen (29.12%) and Qatar (0.17%), respectively (Table 1).

## 5. Discussion

The results of this study showed that the most confirmed COVID-19 cases in the Eastern Mediterranean Region were reported from three countries: Iran, Iraq, and Pakistan. In a study by Al-Mandhari et al. (11) aiming at counteracting COVID-19 in the Eastern Mediterranean region, it was found that in the countries of this region, inter-provincial travel was an important factor for disease transmission. Another point which was different from other

parts of the world was the effect of religious ceremonies and pilgrimages; however, restrictions were imposed on such activities upon the spread of the disease, which were effective in reducing cases. Migrant workers also played a role in propagating the disease across these societies. After returning to their home countries, these workers were probably healthy carriers infecting their family members and others (11). According to a study by Ahmadi et al., who examined the role of climate in COVID-19 spread in Iran, the density of populations and intra-provincial traffic were important factors contributing to the spread of the disease. The disease was more prevalent in the capital and densely populated provinces, while it had a lower prevalence in the border provinces that had low population densities (12). Based on the results of a study by Waris et al. (13) who examined COVID-19 status in Pakistan, it was found that the laboratory and diagnostic equipment for the disease in this country were inadequate for its population, and this lack of facilities for confirming COVID-19 diagnosis negatively affected identifying cases and validating COVID-19 related deaths (13).

The highest case-fatality rates of COVID-19 were recorded in Yemen, Pakistan, and Sudan, respectively. Due to the high case-fatality rate of the disease in these countries, the reported number of definite cases is probably inaccurate in these countries. Yemen has suffered severe damages to its infrastructure and health care system due to the war that has taken place there for the past five years, so, certainly, patients with COVID-19 have not been appropriately identified (14). In Pakistan, there were no adequate laboratories and sufficient diagnostic equipment to identify COVID-19 patients. Given the special circumstances in the Eastern Mediterranean region, some of the countries that are involved in wars and turmoil and those having inadequate diagnostic facilities may not have reported the true number of COVID-19 cases. Countries like Iran and Iraq, which have more competent health systems, were likely to identify more cases of the disease and report more accurate statistics. In conclusion, to control the COVID-19 disease, it is important to observe social distancing guidelines and restrict travel. Particularly, pilgrimages should be held less frequently during the COVID-19 pandemic.

## Footnotes

**Authors' Contribution:** All steps were performed by LM.

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