One-year Review of COVID-19 in the Arab World
Nasar Alwahaibi*, Muna Al Maskari, Buthaina Al Dhahli, Halima Al Issaei, Samiya Al-Jaaidi, Shadia Al Bahlani

ABSTRACT
The coronavirus disease 2019 (COVID-19) has affected almost every country worldwide, including all 22 Arab countries. To the best of our knowledge, this is the first study to follow the prevalence of COVID-19 in all Arab countries. In this review, we aimed to assess the 12-month prevalence of COVID-19 in Arab countries and to compare these findings with other significantly affected countries. World Health Organization, Worldometer, and Ministries of Health websites were used to search for COVID-19 data in all Arab countries. The period covered started from February 2020 to February 2021. In all Arab countries, the median age of the population was 26.25 years. As of March 01, 2021, the total number of confirmed COVID-19 cases in all Arab countries was 4,259,756. Bahrain, Qatar, Lebanon, Kuwait, and United Arab Emirates had the highest reported number of confirmed COVID-19 cases per million population. The total number of COVID-19 deaths was 72,950, with predominance in Lebanon, followed by Tunisia, Jordan, Palestine, and Iraq. In comparison with the topmost affected countries, and based on both the highest number of confirmed and deaths per million population, Arab countries ranked second last before India, with 9,646 and 165 cases, respectively. Among the Arab countries, Qatar, Bahrain, and Lebanon showed the highest number of recovered, confirmed, and death cases per million populations, respectively. The number of confirmed and death cases among all Arab countries triggered significant worries about morbidity and mortality of COVID-19, respectively. However, the younger population in Arab countries may have contributed to fewer COVID-19 deaths in comparison with the topmost affected countries.

Keywords: Arab world, coronavirus, COVID-19, SARS-CoV-2

Address for Correspondence:
Nasar Alwahaibi*
Allied Health Sciences Department, College of Medicine and Health Sciences, Sultan Qaboos University, Muscat, Sultanate of Oman
Email: nasar@squ.edu.om

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INTRODUCTION

The coronavirus disease 2019 (COVID-19) is a highly transmittable viral infection. By August 16, 2021, it had infected 207,995,820 people and caused 4,374,966 deaths worldwide.\(^1\) COVID-19 is caused by severe acute respiratory syndrome-coronavirus 2 (SARS-CoV-2),\(^2\) a positive-sense, single-stranded ribonucleic acid virus belonging to the genus Betacoronavirus.\(^3\) Betacoronavirus also includes SARS-CoV and Middle East respiratory syndrome coronavirus (MERS-CoV), which have caused SARS and MERS in 2003 and 2012, respectively.\(^4\) Although SARS-CoV-2 shares approximately 79% of its genome sequencing with SARS-CoV, it is much more infectious.\(^5\)

The clinical hallmarks of COVID-19 include fever, dry cough, sore throat, headache, fatigue, and breathlessness. In some cases, COVID-19 could progress to pneumonia, hypoxemia, acute respiratory distress syndrome, septic shock, blood clotting dysfunction, multiple organ failure, and finally death.\(^6\) However, many people with COVID-19 remain asymptomatic.\(^7\) Coughing and sneezing are the main modes of transmission of SARS-CoV-2 between humans. Several studies have reported that direct contact with patients with COVID-19 are at high risk of infection.\(^8, 9\) Although almost everyone is vulnerable to this virus, older people and those with hypertension, diabetes, respiratory system disease, cardiovascular disease, and cancers are more susceptible to COVID-19.\(^10,11\)

The recent introduction of COVID-19 vaccines such as those developed by Pfizer-BioNTech, Moderna, Oxford-AstraZeneca, Johnson & Johnson, Gamaleya, CanSino, and Sinopharm hopes to reduce the incidence of COVID-19 and protect more people. However, the insufficient production, late arrival of COVID-19 vaccines, and the unwillingness of many people to be vaccinated are other concerns in many countries. Those who are hesitant to receive COVID-19 vaccination are afraid about the vaccine safety.\(^17, 18\) Thus, many countries have launched COVID-19 vaccination campaigns.\(^19\)

The Arab world contains 22 countries, distributed as 12 in Asia and 10 in Africa. The Arab league was formed to unite Arab countries politically and to represent the interests of the people.\(^20\) However, sex, race, socio-economic classes, layout, and healthcare systems differ from one Arab country to another. Previously, we published 5-month COVID-19 data in all Arab countries (January 1, 2020 to May 31, 2020) and concluded that most Arab countries took some serious early steps to minimize the outbreak of COVID-19.\(^21\) In the present study, we aimed to assess further the prevalence of COVID-19 in the Arab world from February 2020 to February 2021 and to compare these findings with other significantly affected countries.

METHODS

We used World Health Organization, Worldometer, and Ministries of Health websites to search for COVID-19 data in Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine, Qatar, Saudi Arabia (SA), Somalia, Sudan, Syria, Tunisia, United Arab Emirates (UAE), and Yemen. The period covered was from February 2020 to February 2021. The inclusion criterion was official information of clinically diagnosed COVID-19 in English or Arabic. The exclusion criterion was unofficial information regarding COVID-19 in all Arab countries, language restrictions to either English or Arabic, unspecified date and location of information, or suspicion of duplicate information. The following information was collected from each Arab country: total population, median age, date and number of the first announced cases, number of monthly confirmed, death, and recovered cases, and total number of COVID-19 tests. Data were analyzed using the Statistical Package for the Social Sciences (SPSS) software version 23 (SPSS Inc., Chicago, IL, USA). Results are presented as numbers, percentages, and means.

RESULTS

The total Arab population who lived in Arab countries during the study period was 441,622,903. The first Arab country to have officially reported the presence of COVID-19 was UAE, with five cases on January 29, 2020. Egypt was the second Arab country and the first Arab-African country to declare the presence of COVID-19 on February 14, 2020. Comoros, which is an island nation, was the last of the Arab countries to declare the presence of COVID-19 on April 30, 2020. Palestine reported the highest number of its first announcement of COVID-19 with seven cases (May
All Arab countries used real-time polymerase chain reaction (RT-PCR) as the testing method for SARS-CoV-2. UAE performed the highest number of RT-PCRs with 3,076,021 tests per million population, followed by Bahrain and Qatar with 1,777,047 and 547,744, respectively (Table 1).

As of March 01, 2021, the total number of COVID-19 cases in all Arab countries was 4,259,756. As regards the highest number of confirmed cases per million populations, Bahrain, Qatar, Lebanon, Kuwait, and UAE recorded the highest number of reported cases with 70,214, 58,289, 55,113, 44,282, and 39,165, respectively. Based on a 12-month evaluation from February 2020 to February 2021, the trend showed that the highest number of confirmed COVID-19 cases in all Arab countries with 631,692 cases was recorded in November. In the same month, Jordan, Morocco, Iraq, Lebanon, and Tunisia scored their highest number of confirmed COVID-19 cases (Table 2).

The total number of COVID-19 deaths in all Arab countries was 72,950. Deaths per million population were dominant in Lebanon, Tunisia, Jordan, Palestine, and Iraq with 689, 674, 458, 394, and 328, respectively. The trend demonstrated that November had the highest number of deaths in all Arab countries, with 10,797 cases. In the same month, Morocco, Tunisia, Jordan and Iraq had the highest number of COVID-19 deaths (Table 3).

The total number of recovered cases in all Arab countries was 3,744,127. Qatar, Lebanon, Kuwait, UAE, and Jordan showed the highest number of recovered cases per million population with 54,712, 42,849, 41,700, 38,239, and 33,943, respectively. The trend showed that November had the highest number of recovered cases in all Arab countries. In the Table 1. Features of the Arab countries related to COVID-19 as of March 01, 2021.

| Countries | First declaration of COVID-19 | Total population | Median age | Total number of COVID-19 tests | Tests per million population |
|-----------|-----------------------------|-----------------|------------|-----------------------------|-----------------------------|
| Egypt     | 14.02.2020                  | 103,604,518     | 24.1       | 1,000,000                   | 9,652                       |
| Sudan     | 14.03.2020                  | 44,521,306      | 18.3       | NA                          | NA                          |
| Algeria   | 25.02.2020                  | 44,372,339      | 28.9       | NA                          | NA                          |
| Iraq      | 24.02.2020                  | 40,815,271      | 21.2       | 6,846,243                   | 167,737                     |
| Morocco   | 02.03.2020                  | 37,199,532      | 29.1       | 5,655,947                   | 152,043                     |
| SA        | 02.03.2020                  | 35,171,284      | 30.8       | 13,633,077                  | 387,620                     |
| Yemen     | 10.04.2020                  | 30,257,479      | 19.8       | 17,404                      | 575                         |
| Syria     | 22.03.2020                  | 17,779,575      | 21.5       | NA                          | NA                          |
| Somalia   | 16.03.2020                  | 16,183,539      | 18.5       | NA                          | NA                          |
| Tunisia   | 02.03.2020                  | 11,900,361      | 32.7       | 979,785                     | 82,332                      |
| Jordan    | 02.03.2020                  | 10,270,104      | 23.5       | 4,600,197                   | 447,921                     |
| UAE       | 29.01.2020                  | 9,969,323       | 38.4       | 30,665,851                  | 3,076,021                   |
| Libya     | 24.03.2020                  | 6,932,952       | 25.8       | 725,979                     | 104,714                     |
| Lebanon   | 21.02.2020                  | 6,805,100       | 33.7       | 3,025,365                   | 444,573                     |
| Oman      | 24.02.2020                  | 5,191,779       | 26.2       | 1,550,000                   | 298,549                     |
| Palestine | 05.03.2020                  | 5,179,262       | 21.9       | 1,164,857                   | 224,908                     |
| Mauritania| 13.03.2020                  | 4,729,751       | 21         | 173,540                     | 36,691                      |
| Kuwait    | 24.02.2020                  | 4,312,223       | 29.7       | 1,784,499                   | 413,823                     |
| Qatar     | 29.02.2020                  | 2,807,805       | 33.7       | 1,537,958                   | 547,744                     |
| Bahrain   | 24.02.2020                  | 1,740,149       | 32.9       | 3,092,326                   | 1,777,047                   |
| Djibouti  | 18.03.2020                  | 997,477         | 24.9       | 115,711                     | 116,004                     |
| Comoros   | 30.04.2020                  | 881,774         | 20.9       | NA                          | NA                          |
| Total/average | 38          | 441,622,903     | 26.25      |                             |                             |

SA, Saudi Arabia; UAE, United Arab Emirates.
Table 2. Trend of monthly-confirmed COVID-19 cases in all Arab countries as of March 01, 2021.

| Countries | Feb 20 | Mar 20 | Apr 20 | May 20 | June 20 | July 20 | Aug 20 | Sept 20 | Oct 20 | Nov 20 | Dec 20 | Jan 21 | Feb 21 | Total | Per million population |
|-----------|--------|--------|--------|--------|---------|---------|--------|---------|--------|--------|--------|--------|--------|-------|-----------------------|
| Bahrain   | 41     | 526    | 2,473  | 8,358  | 15,149  | 14,224  | 10,990 | 18,892  | 10,781 | 5,311  | 7,719  | 10,382 | 19,337 | 122,183 | 70,214 |
| Qatar     | 1      | 780    | 12,628 | 43,501 | 39,178  | 14,607  | 8,983  | 6,796   | 6,277  | 7,001  | 7,501  | 12,329 | 163,664 | 58,289 |
| Lebanon   | 7      | 463    | 255    | 495    | 558     | 2,777   | 12,753 | 22,326  | 41,594 | 46,716 | 53,559 | 119,549 | 73,998 | 375,050 | 55,113 |
| Kuwait    | 45     | 244    | 3,735  | 23,019 | 19,152  | 20,762  | 18,152 | 20,075  | 20,744 | 16,709 | 7,951  | 14,673 | 25,695 | 190,956 | 44,282 |
| UAE       | 26     | 643    | 11,812 | 22,076 | 14,110  | 11,839  | 9,725  | 23,959  | 38,439 | 36,231 | 37,891 | 95,787 | 87,915 | 390,453 | 39,165 |
| Jordan    | 0      | 268    | 185    | 286    | 393     | 61      | 841    | 9,791   | 60,782 | 146,823 | 32,361 | 64,235 | 391,900 | 38,080 |
| Palestine | 0      | 117    | 227    | 283    | 1,980   | 4,909   | 10,892 | 17,170  | 13,621 | 32,127 | 52,357 | 20,958 | 24,471 | 183,612 | 35,451 |
| Oman      | 6      | 186    | 2,156  | 9,089  | 28,633  | 39,197  | 6,455  | 12,863  | 15,849 | 9,265  | 5,168  | 7,170  | 141,496 | 27,254 |
| Tunisia   | 0      | 393    | 605    | 79     | 95      | 342     | 2,171  | 13,720  | 42,408 | 36,956 | 40,447 | 71,669 | 24,784 | 233,669 | 19,635 |
| Libya     | 0      | 8      | 53     | 69     | 694     | 2,398   | 10,744 | 20,559  | 26,570 | 21,714 | 17,126 | 18,696 | 15,496 | 134,127 | 19,346 |
| Iraq      | 13     | 617    | 1,373  | 4,436  | 42,670  | 75,500  | 110,325 | 128,047 | 109,649 | 79,919 | 42,742 | 24,345 | 75,853 | 695,489 | 17,040 |
| Morocco   | 0      | 602    | 3,821  | 3,360  | 4,602   | 10,874  | 38,140 | 59,784  | 94,111 | 141,041 | 80,997 | 33,825 | 12,609 | 483,766 | 13,005 |
| SA        | 0      | 1,563  | 21,190 | 62,508 | 105,562 | 85,082  | 39,867 | 18,833  | 12,677 | 10,078 | 5,381  | 5,333  | 9,309  | 377,383 | 10,730 |
| Djibouti  | 0      | 31     | 1,058  | 2,265  | 1,328   | 399     | 306    | 29      | 145    | 118   | 145    | 108    | 155    | 6,087  | 6,102  |
| Comoros   | 0      | 0      | 1      | 105    | 197     | 79      | 41     | 51      | 56     | 80    | 155    | 1,961  | 852    | 3,578  | 4,058  |
| Mauritania| 0      | 6      | 2      | 522    | 3,619   | 2,121   | 778    | 426     | 189    | 938   | 5,041  | 2,993  | 582    | 17,217 | 3,640  |
| Algeria   | 3      | 713    | 3,290  | 5,388  | 4,513   | 15,924  | 14,663 | 6,719   | 5,813  | 26,193 | 16,112 | 8,028  | 5,916  | 113,255 | 2,552  |
| Egypt     | 1      | 710    | 4,827  | 19,447 | 43,326  | 25,767  | 4,649  | 4,352   | 4,306  | 8,526  | 20,733 | 29,307 | 17,059 | 183,010 | 1,766  |
| Syria     | 0      | 10     | 33     | 79     | 157     | 478     | 2,006  | 1,435   | 1,528  | 2,159  | 3,547  | 2,614  | 1,540  | 15,588 | 877    |
| Sudan     | 0      | 7      | 268    | 4,651  | 4,322   | 2,238   | 1,693  | 451     | 164    | 4,006  | 7,690  | 1,702  | 1,204  | 28,406 | 638    |
| Somalia   | 0      | 5      | 394    | 1,377  | 948     | 288     | 98     | 278     | 353    | 510    | 263    | 70     | 2,609  | 7,392  | 457    |
| Yemen     | 0      | 0      | 6      | 317    | 835     | 570     | 230    | 76      | 31     | 15     | 22     | 37     | 146    | 2,285 | 75     |
| Total     | 143    | 7,892  | 70,692 | 211,710 | 331,931 | 334,936 | 303,604 | 386,818 | 506,606 | 631,692 | 483,111 | 507,358 | 483,263 | 4,259,756 |

Note that five cases of January 2020 were added to February 2020 in UAE. SA, Saudi Arabia; UAE, United Arab Emirates.
Table 3. Trend of monthly COVID-19 deaths in all Arab countries as of March 01, 2021.

| Countries | Feb 20 | Mar 20 | Apr 20 | May 20 | June 20 | July 20 | Aug 20 | Sept 20 | Oct 20 | Nov 20 | Dec 20 | Jan 21 | Feb 21 | Total | Per million population |
|-----------|--------|--------|--------|--------|---------|---------|--------|---------|--------|--------|--------|--------|--------|-------|------------------------|
| Lebanon   | 0      | 12     | 12     | 3      | 7       | 27      | 115    | 221     | 300    | 424    | 497    | 1,464  | 1,610  | 4,692 | 689       |
| Tunisia   | 0      | 10     | 31     | 7      | 2       | 0       | 26     | 170     | 1,071  | 1,943  | 1,360  | 2,134  | 1,268  | 8,022 | 674       |
| Jordan    | 0      | 5      | 3      | 1      | 0       | 3       | 4      | 61      | 768    | 1,922  | 1,083  | 363    | 488    | 4,701 | 458       |
| Palestine | 0      | 1      | 1      | 1      | 5       | 74      | 70     | 159     | 172    | 249    | 668    | 433    | 209    | 2,042 | 394       |
| Iraq      | 0      | 46     | 46     | 113    | 1,738   | 2,798   | 2,301  | 2,139   | 1,729  | 1,348  | 555    | 234    | 359    | 13,406 | 328      |
| Libya     | 0      | 0      | 2      | 3      | 19      | 47      | 166    | 314     | 306    | 326    | 261    | 433    | 333    | 2,210 | 319       |
| Oman      | 0      | 1      | 10     | 38     | 127     | 258     | 251    | 250     | 273    | 215    | 76     | 30     | 41     | 1,570 | 302       |
| Bahrain   | 0      | 4      | 4      | 1      | 11      | 68      | 60     | 43      | 61     | 70     | 20     | 11     | 23     | 74     | 449       |
| Kuwait    | 0      | 0      | 26     | 186    | 142     | 93      | 84     | 79      | 169    | 101    | 54     | 25     | 124    | 1,083 | 251       |
| Morocco   | 0      | 36     | 134    | 35     | 20      | 121     | 765    | 1,041   | 1,473  | 2,221  | 1,509  | 920    | 362    | 8,637 | 232       |
| SA        | 0      | 10     | 152    | 341    | 1,146   | 1,217   | 1,031  | 871     | 634    | 494    | 327    | 152    | 119    | 6,494 | 185       |
| Comoros   | 0      | 0      | 0      | 2      | 5       | 0       | 0      | 0       | 0      | 0      | 2      | 84     | 51     | 144    | 163       |
| UAE       | 0      | 6      | 99     | 159    | 51      | 36      | 33     | 76      | 77     | 97     | 181    | 371    | 1,221 | 122     |
| Egypt     | 0      | 46     | 346    | 567    | 1,994   | 1,852   | 594    | 515     | 344    | 392    | 926    | 1,740  | 1,420  | 10,736 | 104       |
| Qatar     | 0      | 2      | 8      | 28     | 75      | 61      | 23     | 17      | 18     | 5      | 8      | 3      | 10     | 258    | 92        |
| Algeria   | 0      | 58     | 392    | 203    | 259     | 288    | 310    | 209     | 222    | 490    | 320    | 140    | 96     | 2,987  | 67        |
| Djibouti  | 0      | 2      | 22     | 30     | 4       | 2       | 1      | 0       | 0      | 0      | 2      | 0      | 63     | 63      |
| Syria     | 0      | 2      | 1      | 2      | 4       | 34      | 69     | 88      | 88     | 129    | 294    | 210    | 106    | 1,027 | 58        |
| Sudan     | 0      | 2      | 26     | 258    | 286    | 153     | 98     | 13      | 412    | 312    | 246    | 83     | 1,890  | 42      |
| Yemen     | 0      | 0      | 80     | 232    | 181     | 73      | 21     | 12      | 6      | 5      | 5      | 19     | 634    | 21      |
| Somalia   | 0      | 0      | 28     | 50     | 12      | 3       | 5      | 1       | 5      | 9      | 17     | 0      | 113    | 243    | 15       |
| Mauritania| 0      | 0      | 22     | 103    | 30      | 3       | 2      | 2       | 14     | 165    | 80     | 19     | 441    | 4       |

SA, Saudi Arabia; UAE, United Arab Emirates.
same month, Jordan, Morocco, Iraq, Tunisia, and Lebanon had the highest number of recovered cases (Table 4).

In Table 5, the epidemiological data analyze the Arab world in comparison to the topmost 15 affected countries with COVID-19. Based on the highest number of confirmed and COVID-19 deaths per million population, Arab countries ranked second to last before India, with 9,646 and 165 cases, respectively. As regards the total number of molecular tests per million population for SARS-CoV-2, Arab countries ranked 11th with 173,380 tests. Arab countries showed the youngest median age among their population with only 26.25 years, whereas Germany had the oldest median age with 47.8 years. Other parameters, which include confirmed cases, cases per million, recovered cases, tests per million, and population, are also presented in Table 5.

DISCUSSION

Although many Arab countries applied early serious measures to control the infection of COVID-19 such as suspension of flights and many events, distance learning, lockdown of major cities, physical distancing, quarantine, and wearing of facial masks, COVID-19 is still rapidly increasing. However, because of economic crisis, many Arab countries, as with other global countries, lifted the restrictions before the satisfactory reduction of confirmed cases and deaths. This method could lead to higher numbers of mortality and morbidity.

In this study, we have been following COVID-19 cases in all Arab countries since the pandemic started. The number of confirmed COVID-19 cases has continued to increase gradually in most of the studied countries and peaked in July 2020. The possible reason for that peak was that many countries had reopened shopping malls, private businesses, and offices at full capacity. In August 2020, the trend of confirmed COVID-19 cases showed a decline in most of the Arab countries, except in Syria, Algeria, Libya, Oman, Tunisia, Morocco, Iraq, and Lebanon. This is because many countries reimposed extra restrictions and preventative measures to contain the peak, such as banning international flights, suspending Umrah, and cancelling Hajj for the first time in SA since 1932.

Noticeably, Iraq recorded the highest number of confirmed, death, and recovered cases and showed a dramatic increase in the number of confirmed COVID-19 cases starting from July 2020. The possible explanations are the lack of medical support and the relaxation of both curfews and movement restrictions by the authorities. Despite the air travel ban in Iraq, allowing Iraqi citizens to enter the country without restrictions may have contributed to the escalation of COVID-19 cases. The partial reopening of the border between Iraq and Iran for foodstuff trading has also contributed to the increase in COVID-19 cases. In December 2020, Europe reported a new COVID-19 variant, which could likely be one of the reasons for the increasing prevalence of confirmed COVID-19 cases in many countries observed in January and February 2021.

Since the beginning of the COVID-19 crisis, the total daily death in Arab countries was the highest in November 2020, followed by a fluctuation between a slight decline and increase. This might be attributed to several factors: (i) improvement of medical management and coordinated efforts of the health system; (ii) medical caregivers became more familiar in dealing with the crisis and alleviating patients’ suffering; (iii) community awareness and education on COVID-19 prompted immediate efforts in seeking medical treatment to decrease disease severity; (iv) use of drugs such as remdesivir, tocilizumab, and baricitinib increased the quality of medical care; and (v) increased number of tests and testing methods contributed to the reduction of the overall death rate, as high numbers of tests enabled healthcare providers to quickly detect and assess more cases with mild symptoms or even asymptomatic cases and therefore can request individuals with positive results to remain in isolation for time. Apart from the medical care management system, governmental restriction strategies such as online education, bans on gatherings, quarantine for travelers, travel restrictions, maintaining physical distance, and staying at home limited viral transmission and led to a drop in positive cases and, thus, a decrease in the number of deaths.

Although COVID-19 continues to be a big threat to the world, the number of recovered cases is considered extremely high. Usually, healthy individuals assumed by their strong immunity can tolerate the flu-like symptoms of COVID-19. Nevertheless, very few rare cases of healthy young individuals have died from this pandemic without any clear reason. Several factors might affect how the human body’s immune defense system reacts to the virus. At the
Table 4. Trend of monthly COVID-19 recovered cases in all Arab countries as of March 01, 2021.

| Countries | Feb 20 | Mar 20 | Apr 20 | May 20 | June 20 | July 20 | Aug 20 | Sept 20 | Oct 20 | Nov 20 | Dec 20 | Jan 21 | Feb 21 | Total | Per million population |
|-----------|--------|--------|--------|--------|---------|---------|--------|---------|--------|--------|--------|--------|--------|-------|------------------------|
| Qatar     | 0      | 62     | 1,310  | 28,918 | 51,274  | 25,813  | 8,290  | 7,032   | 6,884  | 6,507  | 5,332  | 4,384  | 7,815  | 153,621| 54,712               |
| Lebanon   | 0      | 35     | 115    | 562    | 471     | 570     | 2,904  | 12,453  | 23,242 | 42,682 | 85,277 | 12,566 | 110,713| 291,590| 42,849               |
| Kuwait    | 0      | 73     | 1,466  | 9,847  | 25,644  | 20,901  | 19,292 | 19,563  | 20,176 | 20,209 | 9,446  | 11,414 | 21,788 | 179,819| 41,700               |
| UAE       | 5      | 56     | 2,368  | 15,503 | 19,634  | 16,339  | 7,022  | 22,793  | 45,178 | 25,997 | 29,543 | 92,516 | 104,267| 381,221| 38,239               |
| Jordan    | 0      | 26     | 336    | 160    | 360     | 202     | 424    | 3,118   | 2,981  | 147,419| 115,525| 44,030 | 115,525| 34,018 | 348,599 | 33,943               |
| Palestine | 0      | 18     | 58     | 447    | 102     | 5,726   | 14,159 | 20,718  | 16,451 | 19,622 | 55,517 | 16,175 | 17,943 | 166,936| 32,232               |
| Oman      | 1      | 33     | 461    | 2,187  | 20,743  | 37,996  | 19,389 | 7,319   | 14,532 | 12,156 | 6,674  | 4,964  | 5,605  | 132,060| 25,436               |
| Libya     | 0      | 0      | 18     | 32     | 159     | 387     | 872    | 17,902  | 15,669 | 19,179 | 17,898 | 26,599 | 22,410 | 121,116| 17,470               |
| Tunisia   | 0      | 1      | 316    | 644    | 69      | 158     | 375    | 979     | 0      | 68,310 | 36,329 | 50,266 | 41,332 | 198,778| 16,704               |
| Iraq      | 0      | 152    | 1,194  | 1,810  | 21,604  | 62,674  | 89,168 | 115,595 | 107,458| 83,019 | 55,167 | 54,288 | 43,802 | 635,931| 15,581               |
| Morocco   | 0      | 24     | 960    | 4,428  | 3,427   | 8,472   | 29,044 | 53,898  | 77,672 | 127,366| 102,213| 41,656 | 20,185 | 469,345| 12,617               |
| SA        | 0      | 165    | 2,998  | 59,279 | 68,324  | 104,892 | 55,138 | 27,135  | 14,788 | 12,960 | 6,902  | 5,720  | 8,732  | 367,033| 10,436               |
| Bahrain   | 0      | NA     | NA     | NA     | NA      | NA      | NA     | NA      | NA     | NA     | NA     | NA     | NA     | NA     | 146,85 | 8,439                |
| Djibouti  | 0      | 2      | 597    | 905    | 3,020   | 475     | 324    | 21      | 97     | 143    | 117    | 53     | 5,898  | 5,913  |                     |
| Comoros   | 0      | 0      | 26     | 174    | 130     | 69      | 54     | 45      | 88     | 230    | 915    | 1,600  | 3,331  | 3,778  |                     |
| Mauritania| 0      | 2      | NA     | NA     | NA      | 1,595   | 3,340  | 1,502   | 627    | 342    | 299    | 3,648  | 4,296  | 907    | 16,558  | 3,501                |
| Algeria   | 0      | 46     | 1,733  | 3,969  | 4,149   | 10,185  | 11,162 | 4,718   | 42,393 | 13,608 | 13,318 | 6,217  | 4,890  | 78,234 | 1,763                |
| Egypt     | 0      | 157    | 1,224  | 4,656  | 12,423  | 21,178  | 32,482 | 23,974  | 3,259  | 3,365  | 9,828  | 17,090 | 11,711 | 141,347| 1,364                |
| Syria     | 0      | 0      | 21     | 22     | 62      | 132     | 392    | 474     | 873    | 219    | 3,101  | 2,266  | 2,239  | 9,801  | 551                 |
| Sudan     | 0      | 0      | 32     | 1,391  | 2,591   | 1,987   | 611    | 152     | 0      | 3,538  | 3,234  | 7,874  | 1,565  | 22,975 | 516                 |
| Somalia   | 0      | 0      | 31     | 317    | 584     | 630     | 1,017  | 367     | 239    | 232    | 195    | 54     | 148    | 3,814  | 236                 |
| Yemen     | 0      | 0      | 31     | 317    | 584     | 630     | 1,017  | 367     | 239    | 232    | 195    | 54     | 148    | 3,814  | 236                 |
| Total     | 6      | 852    | 15,237 | 135,118| 251,567 | 322,561 | 293,896| 339,047 | 354,205| 606,934| 559,533| 403,439| 461,732| 3,744,127 |                     |

SA, Saudi Arabia; UAE, United Arab Emirates.
Table 5. Comparison of COVID-19 prevalence between the Arab world and the top 15 affected countries as of March 01, 2021.

| Country   | Total confirmed cases | Total death cases | Total recovered cases | Cases per million population | Deaths per million population | Total tests | Tests per million population | Population | Median age |
|-----------|-----------------------|-------------------|-----------------------|-----------------------------|------------------------------|-------------|------------------------------|------------|------------|
| USA       | 29,255,344            | 525,776           | 19,694,306           | 88,042                      | 1,582                        | 359,021,570 | 1,080,451                    | 332,288,557 | 38.5       |
| Spain     | 3,188,553             | 69,142            | 2,647,446            | 68,180                      | 1,478                        | 38,491,517  | 823,052                      | 46,766,806  | 43.9       |
| UK        | 4,176,554             | 122,849           | 2,905,317            | 61,310                      | 1,803                        | 89,162,545  | 1,308,859                    | 68,122,332  | 40.6       |
| France    | 3,755,968             | 86,454            | 254,868              | 57,458                      | 1,323                        | 51,853,607  | 793,240                      | 65,369,365  | 41.7       |
| Brazil    | 10,551,259            | 255,018           | 9,411,033            | 49,407                      | 1,194                        | 28,600,000  | 133,920                      | 213,559,824 | 33.2       |
| Italy     | 2,925,265             | 97,699            | 2,405,199            | 48,429                      | 1,617                        | 40,132,887  | 664,422                      | 60,402,725  | 46.5       |
| Argentina | 2,107,365             | 51,965            | 1,905,021            | 46,346                      | 1,143                        | 7,436,806   | 163,554                      | 45,470,082  | 32.4       |
| Poland    | 1,706,986             | 43,769            | 1,422,829            | 45,136                      | 1,157                        | 9,868,422   | 260,938                      | 37,819,061  | 41.9       |
| Colombia  | 2,251,690             | 59,766            | 2,148,249            | 43,943                      | 1,166                        | 11,458,960  | 223,627                      | 51,241,336  | 31.2       |
| Turkey    | 2,701,588             | 28,569            | 2,572,234            | 31,806                      | 336                          | 33,175,016  | 390,575                      | 84,938,841  | 32.2       |
| Germany   | 2,450,294             | 70,687            | 2,248,400            | 29,183                      | 842                          | 43,950,029  | 523,454                      | 83,961,653  | 47.8       |
| Russia    | 4,246,079             | 86,122            | 3,811,797            | 29,088                      | 590                          | 111,000,000 | 760,399                      | 145,976,024 | 40.3       |
| Iran      | 1,631,169             | 60,073            | 1,393,125            | 19,258                      | 709                          | 10,853,800  | 128,140                      | 84,702,699  | 31.7       |
| Mexico    | 2,086,938             | 185,715           | 1,633,900            | 16,075                      | 1,430                        | 5,453,322   | 42,004                       | 129,828,120 | 29.3       |
| Arab World| 4,259,756             | 72,950            | 3,744,127            | 9,646                       | 165                          | 76,568,739  | 173,380                      | 441,622,903 | 26.25      |
| India     | 11,112,241            | 157,195           | 10,786,457           | 8,000                       | 113                          | 216,858,774 | 156,129                      | 1,388,975,299 | 28.7       |
individual level, the genetic makeup of the human body can play a key role in immune responses. Lifestyles such as eating healthy food and exercising play major roles in strengthening immunity.\textsuperscript{36} This speculation can be true in countries such as Iraq, with 635,931 as the highest number of total recovered cases among Arab countries from February 2020 to February 202 (Table 4). Given the unstable political conditions such as in Iraq, people are forced to engage in utilizing their natural resources to produce their local food and work even harder to bring about positive changes. Another example is Morocco and Jordan that scored the highest number of recovered cases, as these countries share similar climates and lifestyles that might influence disease outcomes. Although in 2017 Qatar was blocked by neighboring countries, it recorded the highest number of recovered cases in comparison with other Arab countries, with 54,712 per million population; thus, limited travels allowed easier control of movement into the country.\textsuperscript{37} Coronavirus and the blockade made Qatar to self-govern economically, as currently Qatar produces products such as milk and other items.

We have previously compared data between the Arab world and the topmost 15 affected countries with COVID-19.\textsuperscript{21} As of May 31, 2020, the total number of confirmed COVID-19 cases for the Arab world was 290,428, ranking it fourth among the top 15 countries.\textsuperscript{18} For over 9 months, the total number of confirmed COVID-19 cases increased to 76,568,739 by March 01, 2021, representing an alarming situation despite maintaining the same rank (Table 5). The other 15 countries also showed an increasing trend of confirmed COVID-19 cases; however, Colombia, Argentina, and Poland superseded Peru, Chile, and Canada, climbing up to the top 15 affected countries. While the Arab world may rank fourth in terms of the total number of confirmed COVID-19 cases, it ranked second to last before India in terms of cases per million population (9,321) and deaths per million population (165). These are very encouraging figures and indicate that the Arab world, after India, has fewer cases as a percentage of its population compared with the rest of the top-affected countries as shown in Table 5.

The other important parameter is the adequacy of testing. Increasing testing capacity is one of the measures implemented to control the spread of COVID-19. The top 15 countries including the Arab world showed increasing testing capacity in the number of tests per million conducted from May 31, 2020, to March 01, 2021. Italy, Spain, and Germany were reported to scale up testing and flatten the curve faster than other countries.\textsuperscript{38} Despite these figures, there is still criticism on whether all cases are being detected.\textsuperscript{39} Several studies have considered that older age influences the severity of COVID-19 with often more negative clinical outcomes compared with the younger population.\textsuperscript{40–42} The Arab world, followed by India, has the youngest median age, and this could partly explain the lower number of deaths per million population than recorded in the 13 top-affected countries. Surprisingly, Mexico also had a significantly young median age of 29.3 years compared with Germany (median age = 47.8) but recorded 1430 deaths per million, whereas Germany, which has probably much better healthcare, had a much lower number of deaths per million, i.e., 842.

This study has some limitations. First, some potential risk factors, such as signs and symptoms, gender, age, death causes, medications, duration of hospital admission, and other confounders (hypertension, diabetes, respiratory system disease, and cardiovascular disease), which can be associated with confirmed, death, and recovered cases of COVID-19 were unavailable. Second, many patients who were asymptomatic or had mild symptoms and who were treated at home might not be included in these data. Third, many non–Arab nationals work in Arab countries, and most of the published data did not distinguish Arabs from non–Arabs. Finally, while data of tests per million are instructive of demonstrating increasing testing capacity, it is unknown whether some countries record the number of people tested or the total number of tests performed, as some people may require more tests to obtain accurate results.

CONCLUSION

Among the Arab countries, Qatar, Bahrain, and Lebanon showed the highest number of recovered, confirmed, and deaths per million population, respectively. The number of confirmed and death cases among Arab countries trigger significant worries about morbidity and mortality related to COVID-19, respectively. However, a younger Arab population in the world may contribute to fewer COVID-19 deaths in comparison with the topmost affected countries worldwide.
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