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Coronavirus Pandemic

A review of the prevalence of COVID-19 in the Arab world

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Abstract

Introduction: Coronavirus disease 2019 (COVID-19) is a rapidly spreading disease worldwide. It is a real test for all health authorities including Arab countries. In this review, we aimed to assess the prevalence of COVID-19 in the Arab world. In addition, to compare the findings of this study with other top affected countries.

Methodology: We searched for official websites from the Ministries of Health and other official sources in all 22 Arab countries. Medline, Science Direct and Google Scholar websites were also used to search for COVID-19, 2019 novel coronavirus, SARS-CoV-2 and coronavirus. The time period was from 1 January 2020 to 31 May 2020.

Results: As of May 31, 2020, COVID-19 has caused 290,428 confirmed cases, 3,696 deaths and 157,886 cured cases in all Arab countries. In terms of confirmed cases, Saudi Arabia followed by Qatar, UAE, Kuwait and Egypt have the highest reported cases. However, the total number of deaths was dominant in Egypt, followed by Algeria, Saudi Arabia, Sudan and UAE. In comparison to other non-Arab countries and confirmed cases, Arab countries come fourth after USA, Brazil and Russia. In terms of death, the Arab world is not listed as the top ten affected countries as only scored eight deaths per million have been recorded.

Conclusions: Most Arab countries took some serious early steps to minimize the outbreak of COVID-19. At the moment, controlling the source of infection, the route of transmission and taking care of infected patients are the main challenges for health authorities in all Arab countries.

Key words: Arab world; Coronavirus; COVID-19; SARS-CoV-2.

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Introduction

As of May 31, 2020, coronavirus disease 2019 (COVID-19) has caused 6,057,853 confirmed total cases, 371,166 deaths and 2,847,539 cured cases in 213 countries and territories over six continents [1]. COVID-19 is a rapidly spreading disease. The first official announcement of coronavirus by the Wuhan Municipal Health Commission in China was on 31 December 2019 [2]. In about two months later (March, 11, 2020), World Health Organization (WHO) declared COVID-19 as a pandemic.

Previous exposures of coronaviruses to humans were prominent in 2003 and 2012 with severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV), respectively. Many studies suggest that bats could be the main source of severe acute respiratory syndrome -coronavirus 2 (SARS-CoV-2) [3-5]. A recent study revealed that COVID-19 has a 96.2% genome sequence similarity with Bat CoV RaTG13 [6]. Moreover, bats are also considered to be the usual pool of a wide variety of coronaviruses including SARS-CoV-like and MERS-CoV-like viruses [7]. SARS-CoV-2 is a positive-sense, single-stranded RNA virus belonging to the genus *Betacoronavirus* [8]. Although SARS-CoV-2 shares about 79% of its genome sequencing with SARS-CoV, it is much more transmissible [9].

Coughing and sneezing are believed to be the main transmission mode of SARS-CoV-2 between humans. Several studies revealed that close contacts with COVID-19 patients are at high risk of infection [10,11]. A recent study revealed that the virus was detected in feces, suggesting that SARS-CoV-2 may be transmitted by the fecal route [12]. People who are more susceptible to COVID-19 include the elderly [13] and patients with hypertension, diabetes, respiratory system disease and cardiovascular disease [14]. The most common clinical features of COVID-19 include fever, cough, sore throat, headache, fatigue and breathlessness. It is important to note that these symptoms can also be found with other diseases. In some cases, patients can progress to pneumonia, respiratory failure and finally death [15]. In general, the incubation period of the disease is 3-7 days,

but no longer than two weeks [16]. Currently, there is no cure for SARS-CoV-2 and vaccines are not yet available. However, there are many COVID-19 vaccine candidates being conducted under different stages of trials [17].

The Arab league consists of 22 Arab countries distributed as 12 in Asia and 10 in Africa. These countries combined to have a total area of over 5 million square miles. The Arab league was created to unite the Arab countries politically and to represent the interests of the people. However, the health system and resources available differ from one country to another. COVID-19 is a real test for health authorities in all Arab countries. In this review, we aimed to assess the prevalence of COVID-19 patients in the Arab world from January to May 2020 and to compare these findings with other affected countries.

Methodology

Medline, Science Direct and Google Scholar websites were used to search for COVID-19, 2019 novel coronavirus, SARS-CoV-2, coronavirus and in combination with 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. In addition, Google website was used to search for official websites and announcements from the Ministries of Health in all Arab countries and other official sources such as WHO. The time period was from 1 January 2020 to 31 May 2020. Inclusion criteria include official information in clinically diagnosed COVID-19 in English or Arabic. Exclusion criteria include unofficial information regarding COVID-19 in all Arab countries, language restrictions to English or Arabic only and unspecified date and location of the information or suspicion of duplicate information. The following information was collected from each Arab country: first announced cases, number of confirmed, death and cured cases monthly, gender, average age, preventive methods, total population and testing methods used. The review was conducted using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) [18]. The 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

Our research produced 301 records. After removing the duplicate records, 196 records were obtained. In addition, 82 records were excluded as they were irrelevant to our study. The suitability of 114 records

Table 1. The trend of confirmed cases of COVID-19 in all Arab countries as of May 31 2020.

Countries	February	March	April	May	Total	Percentage	Population	Average age
SA	0	1,563	21,190	62,508	85,261	0.25	34,766,601	32
Qatar	1	780	12,628	43,501	56,910	1.97	2,876,776	32
UAE	26	643	11,812	22,076	34,557	0.35	9,880,208	33
Kuwait	45	244	3,735	23,019	27,043	0.63	4,265,091	37
Egypt	1	710	4,827	19,447	24,985	0.02	102,162,663	25
Oman	6	186	2,156	9,089	11,437	0.22	5,094,596	31
Bahrain	41	526	2,473	8,358	11,398	0.67	1,695,780	32
Algeria	3	713	3,290	5,388	9,394	0.02	43,780,936	29
Morocco	0	602	3,821	3,360	7,783	0.02	36,873,293	30
Iraq	13	617	1,373	4,436	6,439	0.02	40,140,397	21
Sudan	0	7	368	4,651	5,026	0.01	43,755,620	20
Djibouti	0	31	1,058	2,265	3,354	0.34	986,755	27
Somalia	0	5	594	1,377	1,976	0.01	15,851,530	17
Lebanon	7	463	255	495	1,220	0.02	6,827,788	30
Tunisia	0	393	605	79	1,077	0.01	11,808,177	33
Jordan	0	268	185	286	739	0.01	10,194,610	24
Palestine	0	117	227	283	627	0.01	5,090,574	21
Mauritania	0	6	2	522	530	0.01	4,638,278	20
Yemen	0	0	6	308	314	0.00	29,766,367	20
Libya	0	8	53	69	130	0.00	6,863,245	29
Syria	0	10	33	79	122	0.00	17,461,550	26
Comoros	0	0	1	105	106	0.01	867,928	20
Total	**143**	**7,892**	**70,692**	**211,701**	**290,428**	**0.07**	**435,648,763**	

for UAE, 5 cases of January were added into February. SA: Saudi Arabia. UAE: United Arab Emirates.

were further assessed and 90 records were removed according to the following reasons: (i) 67 records were not suitable, (ii) 14 showed brief reports, (iii) 8 were letters to editors and (iv) one record was not up to date. Finally, 24 records were included in the analysis [1,19-41].

The total Arab population who live in Arab countries is 435,648,763. The first Arab country to officially report 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. All Arab countries utilized real-time polymerase chain reaction (Real-time PCR) as the testing method for SARS-CoV-2. Results are obtained in about four to five hours following nasal and nasopharyngeal swabs.

As of May 31, 2020, the total number of COVID-19 cases in all Arab countries was 290,428. In terms of total confirmed cases with COVID-19, Saudi Arabia followed by Qatar, UAE, Kuwait and Egypt have the highest reported cases with 85,261, 56,910, 34,557, 27,043 and 24,985, respectively. Based on the evaluation of four months from February to May, the trend showed that the month of May had the highest number of confirmed COVID-19 cases in all Arab countries except in Morocco and Tunisia where April showed the highest number of cases (Table 1).

The total number of deaths in all Arab countries were 3,696 cases. The total number of deaths was dominant in Egypt, followed by Algeria, Saudi Arabia, Sudan and UAE with 959, 653, 503, 286 and 264, respectively. The trend demonstrated that May had the highest number of deaths in all Arab countries. In April, only five countries; Algeria, Morocco, Tunisia, Lebanon and Jordan showed the highest number of deaths (Table 2).

The total number of cured cases in all Arab countries was 157,886. Saudi Arabia, Qatar, UAE, Kuwait and Bahrain showed the highest number of cured cases with 62442, 30290, 17932, 11386 and 6673, respectively. The trend showed that May had the highest number of cured cases in all Arab countries (Table 3).

Statistically COVID-19 cases show that Arab countries are ranked fourth after USA, Brazil and Russia. In terms of total deaths, Arab countries come in the second last, before Chile. UAE performed 2,110,493 molecular tests for SARS-CoV-2 whereas Yemen conducted only 120. Other parameters which include total tests, tests per million, population and average age are summarized in Table 4.

Table 2. The trend of death cases of COVID-19 in all Arab countries as of May 31 2020.

Countries	February	March	April	May	Total	Percentage
Egypt	0	46	346	567	959	3.83
Algeria	0	58	392	203	653	6.95
SA	0	10	152	341	503	0.59
Sudan	0	2	26	258	286	5.69
UAE	0	6	99	159	264	0.76
Kuwait	0	0	26	186	212	0.78
Iraq	0	46	46	113	205	3.18
Morocco	0	36	134	35	205	2.63
Somalia	0	0	28	50	78	3.94
Oman	0	1	10	38	49	0.42
Tunisia	0	10	31	7	48	4.45
Qatar	0	2	8	28	38	0.07
Syria	0	2	1	1	4	23.77
Lebanon	0	12	12	3	27	2.21
Djibouti	0	0	2	22	24	0.71
Mauritania	0	0	1	22	23	4.34
Bahrain	0	4	4	11	19	0.17
Jordan	0	5	3	1	9	1.22
Palestine	0	1	1	3	5	0.79
Libya	0	0	2	3	5	3.84
Comoros	0	0	0	2	2	1.88
Yemen	0	0	0	78	78	24.84
Total	**0**	**241**	**1,324**	**2,131**	**3,696**	

SA: Saudi Arabia. UAE: United Arab Emirates.

Table 3. The trend of cured cases of COVID-19 in all Arab countries as of May 31 2020.

Countries	February	March	April	May	Total	Percentage
SA	0	165	2,998	59,279	62,442	73.23
Qatar	0	62	1,310	28,918	30,290	53.22
UAE	5	56	2,368	15,503	17,932	51.89
Kuwait	0	73	1,466	9,847	11,386	42.1
Bahrain	0	NA	NA	NA	6,673	58.54
Egypt	0	157	1,224	4,656	6,037	24.16
Algeria	0	46	1,733	3,969	5,748	61.18
Morocco	0	24	960	4,428	5,412	69.53
Iraq	0	152	1,194	1,810	3,156	49.01
Oman	1	33	461	2,187	2,682	23.45
Djibouti	0	2	597	905	1,504	44.84
Sudan	0	0	32	1,391	1,423	28.31
Tunisia	0	1	315	644	960	89.13
Lebanon	0	35	115	562	712	58.36
Palestine	0	18	58	447	523	83.41
Jordan	0	26	336	160	522	70.63
Somalia	0	0	31	317	348	17.61
Libya	0	0	18	32	50	38.46
Syria	0	0	21	22	43	35.24
Comoros	0	0	0	26	26	24.52
Mauritania	0	2	NA	NA	2	0.38
Yemen	0	0	0	15	15	4.77
Total	**6**	**852**	**15,237**	**135,118**	**157,886**	

NA: Not available. For Bahrain, only total cured data were available from WHO. SA: Saudi Arabia. UAE: United Arab Emirates.

Table 4. Comparison of COVID-19 between Arab world and the top 15 affected countries as of May 31 2020.

Country	Total Confirmed cases	Total Death cases	Total Cured cases	Cases per million	Deaths per million	Total Tests	Tests per million	Population	Average age
USA	1,837,170	106,195	599,867	5,553	321	17,672,567	53,417	330,843,477	38
Brazil	514,992	29,341	206,555	2,424	138	930,013	4,378	212,434,518	33
Russia	405,843	4,693	171,883	2,781	32	10,643,124	72,933	145,929,507	40
Arab World	290,428	3,696	157,886	6,667	8	4,824,425	11,074	435,648,763	26.77
Spain	286,509	27,127	196,958	6,128	580	4,063,843	86,921	46,753,345	45
UK	274,762	38,489	NA	4,049	567	4,285,738	63,158	67,856,881	40
Italy	232,997	33,415	157,507	3,853	553	3,878,739	64,144	60,468,778	47
India	190,622	5,408	91,855	138	4	3,737,027	2,710	1,378,863,296	28
France	188,882	28,802	68,355	2,894	441	1,384,633	21,217	65,261,942	42
Germany	183,494	8,605	165,200	2,191	103	3,952,971	47,193	83,762,346	46
Peru	164,476	4,506	67,208	4,994	137	1,058,874	32,153	32,932,217	31
Turkey	163,942	4,540	127,973	1,946	54	2,039,194	24,201	84,262,291	32
Iran	151,466	7,797	118,848	1,805	93	935,894	11,155	83,900,826	32
Chile	99,688	1,054	42,727	5,219	55	582,440	30,490	19,102,509	35
Canada	90,947	7,295	48,879	2,411	193	1,665,831	44,169	37,714,510	41
Mexico	90,664	9,930	64,326	704	77	270,992	2,104	128,818,338	29

NA: Not available.

Discussion

Currently, COVID-19 is the number one threat on human health worldwide, resulting in serious challenges for governments and healthcare workers in regards to its spread, treatment and prevention. For this reason, the urge to understand the disease behavior and how any preventive or controlled measures might have influenced such spread is necessary. Therefore, the current review aimed to assess the prevalence of COVID-19 patients in the Arab world and to compare them with other affected countries from January to May 2020. To our knowledge, we are the first to summarize the numbers of confirmed, death and cured cases monthly compared to the total population and testing method in the 22 Arab countries.

COVID-19 greatly pressurized the health care system due to the high numbers of cases and deaths in many countries. Strategies and measures to reduce the spread of COVID-19 included the lockdown of major cities, full suspension of flights, university and school closure, social distancing, suspension of events, provision of free-of-charge health care to all patients, and launching of COVID-19 active screening in the highly infected areas [42]. Moreover, quarantine was also implemented as it is recommended by the WHO to be the most effective intervention strategy for preventing the spread of the virus [43,44]. The timing and restrictions of these strategies varies from one country to another, which subsequently affected the number of confirmed and death cases overtime as discussed below.

Although the first Arab country to officially report confirmed cases was UAE (5 cases; January, 29, 2020), Kuwait showed the highest cases, followed by Bahrain, UAE and Iraq in February. The highest reported cases in these countries were synchronous with Iran which reported its first case of COVID-19 on 19 February 2020 and continue to become among the most severely affected countries as of 18 May 2020 [45]. Many Arabs especially in the Gulf Cooperation Council region considered Iran as a central attraction for religious and personal reasons [46]. On the other hand, Egypt was the second Arab country and the first Arab -African country to declare the presence of COVID-19 on February 14, 2020. Having said that, the cases did not increase in number in that month and thus was not among the Arab countries with highest cases. The geographic location and the self-sufficiency of labor and other resources might limit or reduce the entry of travelers from China at the beginning of the pandemic. This theory might be also applicable to other Arab countries, which reported zero cases in February.

All Arab countries reported increasing number of confirmed cases except in Morocco and Tunisia. However, the increase in confirmed cases varied from one country to another based on the preventive and controlled measures used by each country. Some countries delayed in applying these measures resulting in an increase in COVID-19 cases and further spreading of the disease. Surprisingly countries such as Iraq, Sudan, Somalia, Lebanon, Palestine, Yemen, Libya and Syria showed less than 0.025% of confirmed cases despite implementing less restricted measures. The unstable political status of these countries might have played a major role for such percentage. Their health care system is already suffering from lack of resources and proper policies. In addition, the lack of accurate and frequent testing, financial support and most importantly documentation, all these could have led to the underestimation of reported cases. Other stable countries, which showed similar or less percentage of confirmed cases, could be due to their geographic location and interaction with the outside world such as Mauritania and Comoros.

The trend of death cases among all Arab countries revealed some discrepancies as demonstrated in Table 2. For example, although Saudi Arabia showed the highest number of confirmed cases with 85261 but their death rate percentage (0.59%) is less than in Egypt (3.83%), which showed 24985 confirmed cases. Irrespective of the initially low percentage of confirmed cases, countries undergoing civil wars such as Syria and Yemen showed the highest percentage of death cases with 23.77% and 24.84%, respectively. On the other hand, countries with strong health care system and proper adhered policies in handling the pandemic showed very low percentages of death cases such as Oman, Qatar and Bahrain with 0.42, 0.07 and 0.17%, respectively. Thus, the political status and the health care system might affect the spread of infection and patients' management.

All Arab countries showed a scaling trend of cured cases of COVID-19 regardless of the above-mentioned factors that previously influenced the confirmed and death cases in these countries. The period of such cases was either longer or shorter and slower or faster depending on certain criteria set by each country. For example, cured cases can be determined by either using laboratory tests similar to the detection test or by the absence of symptoms. The nature of COVID-19 indicated that some of its symptoms such as coughing required long time to disappear. For that reason, reporting of the confirmed cured cases takes longer.

Despite recent data showing that COVID-19 has killed more than 371,166 people worldwide, the Arab countries have recorded the lowest number of deaths. When comparing these 22 countries to the rest of the world, they are ranked fourth place after USA, Brazil and Russia, as their total population is higher (435, 648,763). Based on the average age (26.77 years), the Arab world is considered to be the youngest among the rest, indicating why the disease is considered to be less aggressive and subsequently leading to less death rate (eight deaths per million). This was also true for India, which harbors young population (28 years) and subsequently less death (four deaths per million). These findings are in line with other similar reported results in Italy, China and United States that have associated COVID-19 deaths to be more common in older adults than younger persons [47-49]. Mexico has also a young population but their death cases are huge compared to the above two young countries (77 deaths per million). This could be explained by different theories including (i) the genetic makeup of this population (ii) the preventive and controlled measures that were immediately used to handle the pandemic and (iii) the health care system that has a great impact on these percentages. In the absence of vaccine or specific drugs for COVID-19, reducing the spread and transmission of the infection is the best protective approach that any country must follow [50].

Several limitations of our study are worth noting. First, difficulty of obtaining data. Second, short time span of study, of five months as this may miss the events leading to more useful data. Third, the absence of gender and age information in many Arab countries did not allow us to perform many comparisons and estimate the risk factors. Fourth, the lack of relevant studies in many Arab countries. All these limiting factors could be justified that COVID-19 is a new disease and requires more time for preparation and analysis. Fifth, many non-Arab nationalities work in those Arab countries and most of those evaluated data did not distinguish Arabs from non-Arabs. Finally, many patients who were asymptomatic or had mild symptoms and who were treated at home, might not be included in those data.

Conclusions

With all the variations detected among the Arab countries in either their political status, preventive and controlled measures, policies and/or the health care system, progression in handling the COVID-19 is still manageable. The total scale and severity of COVID-19 cases in all the Arab countries is still considered to be at low risk and is ranked fourth due to the strict and serious early measures taken to minimize this outbreak. Currently strategies such as minimizing the source of infection, the route of transmission and taking care of infected patients remain as the main challenges for health authorities in all Arab countries in controlling the COVID-19 pandemic.

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References

1. World Health Organization (2020) Coronavirus disease 2019 (COVID-19) Situation Report -133. Available: https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200601-covid-19-sitrep-133.pdf?sfvrsn=9a56f2ac_4. Accessed: 1 June 2020.
2. Wang W, Tang J, Wei F (2020) Updated understanding of the outbreak of 2019 novel coronavirus (2019-nCoV) in Wuhan, China. J Med Virol 92: 441–447.
3. Giovanetti M, Benvenuto D, Angeletti S, Ciccozzi M (2020) The first two cases of 2019-nCoV in Italy: Where they come from? J Med Virol 92: 518–521.
4. Paraskevis D, Kostaki EG, Magiorkinis G, Panayiotakopoulos G, Sourvinos G, Tsiodras S (2020) Full-genome evolutionary analysis of the novel corona virus (2019-nCoV) rejects the hypothesis of emergence as a result of a recent recombination event. Infect Genet Evol 79: 104212.
5. Banerjee A, Kulcsar K, Misra V, Frieman M, Mossman K (2019) Bats and Coronaviruses. Viruses 11: 41.
6. Zhou P, Yang X-L, Wang X-G, Hu B, Zhang L, Zhang W, Si H-R, Zhu Y, Li B, Huang C-L, Chen H-D, Chen J, Luo Y, Guo H, Jiang R-D, Liu M-Q, Chen Y, Shen X-R, Wang X, Zheng X-S, Zhao K, Chen Q-J, Deng F, Liu L-L, Yan B, Zhan F-X, Wang Y-Y, Xiao G-F, Shi Z-L (2020) A pneumonia outbreak associated with a new coronavirus of probable bat origin. Nature 579: 270–273.
7. Li W (2005) Bats are natural reservoirs of SARS-like Coronaviruses. Science 310: 676–679.
8. Chan JF-W, Kok K-H, Zhu Z, Chu H, To KK-W, Yuan S, Yuen K-Y (2020) Genomic characterization of the 2019 novel human-pathogenic coronavirus isolated from a patient with atypical pneumonia after visiting Wuhan. Emerg Microbes Infect 9: 221–236.
9. Zhu N, Zhang D, Wang W, Li X, Yang B, Song J, Zhao X, Huang B, Shi W, Lu R, Niu P, Zhan F, Ma X, Wang D, Xu W, Wu G, Gao GF, Tan W (2020) A novel Coronavirus from patients with pneumonia in China, 2019. N Engl J Med 382: 727–733.
10. de Wit E, van Doremalen N, Falzarano D, Munster VJ (2016) SARS and MERS: recent insights into emerging coronaviruses. Nat Rev Microbiol 14: 523–534.
11. Sohrabi C, Alsafi Z, O'Neill N, Khan M, Kerwan A, Al-Jabir A, Iosifidis C, Agha R (2020) World Health Organization declares global emergency: A review of the 2019 novel coronavirus (COVID-19). Emerg Microbes Infect 76: 71–76.

12. Wang W, Xu Y, Gao R, Lu R, Han K, Wu G, Tan W (2020) Detection of SARS-CoV-2 in different types of clinical specimens. JAMA 323: 1843-1844.
13. Zhang J, Dong X, Cao Y, Yuan Y, Yang Y, Yan Y, Akdis CA, Gao Y (2020) Clinical characteristics of 140 patients infected with SARS-CoV-2 in Wuhan, China. Allergy 75: 1730–1741.
14. Yang J, Zheng Y, Gou X, Pu K, Chen Z, Guo Q, Ji R, Wang H, Wang Y, Zhou Y (2020) Prevalence of comorbidities and its effects in patients infected with SARS-CoV-2: a systematic review and meta-analysis. Int J Infect Dis 94: 91–95.
15. Guan W, Ni Z, Hu Y, Liang W, Ou C, He J, Liu L, Shan H, Lei C, Hui DS, Du B, Li L, Zeng G, Yuen K-Y, Chen R, Tang C, Wang T, Chen P, Xiang J, Li S, Wang J, Liang Z, Peng Y, Wei L, Liu Y, Hu Y, Peng P, Wang J, Liu J, Chen Z, Li G, Zheng Z, Qiu S, Luo J, Ye C, Zhu S, Zhong N (2020) Clinical characteristics of 2019 novel coronavirus infection in China. N Engl J Med 382: 1708-1720.
16. Gralinski LE, Menachery VD (2020) Return of the Coronavirus: 2019-nCoV. Viruses 12: 135.
17. Patel SK, Pathak M, Tiwari R, Yatoo MohdI, Malik YS, Sah R, Rabaan AA, Sharun K, Dhama K, Bonilla-Aldana DK, Rodriguez-Morales AJ (2020) A vaccine is not too far for COVID-19. J Infect Dev Ctries 14: 450–453. doi: 10.3855/jidc.12744.
18. Moher D, Liberati A, Tetzlaff J, Altman DG, for the PRISMA Group (2009) Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. BMJ 339: b2535–b2535.
19. Saudi Arabia Ministry of Health (2020) Coronavirus disease 19. Available: https://www.moh.gov.sa/en/Pages/default.aspx. Accessed: 1 June 2020.
20. Qatar Ministry of Public Health (2020) Coronavirus disease 2019 (COVID-19). Available: https://covid19.moph.gov.qa/EN/Pages/default.aspx. Accessed: 1 June 2020.
21. United Arab Emirates, Ministry of Health and Prevention (2020) COVID-19 Information Center. Available: https://www.mohap.gov.ae/en/AwarenessCenter/Pages/COVID19-Information-Center.aspx. Accessed: 01 June 2020.
22. Kuwait Ministry of Health (2020) COVID-19 updates State of Kuwait live. Available: https://corona.e.gov.kw/En/Home/BreakingNews. Accessed: 01 June 2020.
23. World Health Organization Health Emergency Dashboard (2020) COVID-19, Egypt data. Available: https://covid19.who.int/region/emro/co)untry/eg. Accessed: 01 June 2020.
24. Oman Ministry of Health (2020) Coronavirus data. Available: https://www.moh.gov.om/en/home. Accessed: 01 June 2020.
25. Bahrain's Ministry of Public Health Coronavirus (2020) COVID-19 Summary of cases. Available: https://www.moh.gov.bh/. Accessed: 01 June 2020.
26. Algerian Ministry of Health, Population and Hospital Reform (2020) Coronavirus data**.** Available: http://www.aps.dz/en/. Accessed: 01 June 2020.
27. World Health Organization Health Emergency Dashboard (2020) COVID-19, Morocco. Available: https://covid19.who.int/region/emro/country/ma. Accessed: 01 June 2020.
28. World Health Organization Health Emergency Dashboard (2020) COVID-19, Iraq. Available: https://covid19.who.int/region/emro/country/iq. Accessed: 01 June 2020.
29. Sudan Ministry of Health (2020) COVID-19. Available: http://fmoh.gov.sd/index.php/files/index/116. Accessed: 01 June 2020.
30. World Health Organization Health Emergency Dashboard (2020) COVID-19, Djibout. Available: https://covid19.who.int/region/emro/country/dj. Accessed: 01 June 2020.
31. Somalia Ministry of health (2020) COVID-19 dashboard. Available: https://moh.gov.so/en/covid19/. Accessed: 01 June 2020.
32. Lebanon Ministry of Public Health (2020) Novel Coronavirus 2019. Available: https://www.moph.gov.lb/en/. Accessed: 01 June 2020.
33. World Health Organization Health Emergency Dashboard (2020) COVID-19, Tunisia. Available: https://covid19.who.int/region/emro/country/tn. Accessed: 01 June 2020.
34. World Health Organization Health Emergency Dashboard (2020) COVID-19, Jordan. Available: https://covid19.who.int/region/emro/country/jo. Accessed: 01 June 2020.
35. Palestinian Ministry of Health (2020) Coronavirus data. Available: http://www.moh.gov.ps/portal/en/. Accessed: 01 June 2020.
36. United Nations International Children's Emergency Fund (UNICEF) (2020) Mauritania COVID-19 situation report No. 6. Available: https://reliefweb.int/report/mauritania/unicef-mauritania-covid-19-situation-report-no-6-16-31-may-2020. Accessed: 01 June 2020.
37. Yemen Ministry of Public Health and Population (2020) Coronavirus data. Available: http://moh.gov.ye/en/home.aspx. Accessed: 01 June 2020.
38. World Health Organization Health Emergency Dashboard (2020) COVID-19, Libya. Available: https://covid19.who.int/region/emro/country/ly. Accessed: 01 June 2020.
39. World Health Organization Health Emergency Dashboard (2020) COVID-19, Syria. Available: https://covid19.who.int/region/emro/country/sy. Accessed: 01 June 2020.
40. World Health Organization Health Emergency Dashboard (2020) COVID-19, Comoros**.** Available: https://covid19.who.int/region/afro/country/km. Accessed: 01 June 2020.
41. World Population Clock - Worldometer (2020) Current population. Available: https://www.worldometers.info/world-population. Accessed: 01 June 2020.
42. Iacobucci G (2020) Covid-19: all non-urgent elective surgery is suspended for at least three months in England. BMJ 368: 1106.
43. Lu R, Qin J, Wu Y, Wang J, Huang S, Tian L, Zhang T, Wu X, Huang S, Jin X, Zhang C (2020) Epidemiological and clinical characteristics of COVID-19 patients in Nantong, China. J Infect Dev Ctries 14: 440–446. doi:10.3855/jidc.12678
44. Xiao Z, Xie X, Guo W, Luo Z, Liao J, Wen F, Zhou Q, Han L, Zheng T (2020) Examining the incubation period distributions of COVID-19 on Chinese patients with different travel histories. J Infect Dev Ctries 14: 323–327. doi: 10.3855/jidc.12718
45. Alandijany TA, Faizo AA, Azhar EI (2020) Coronavirus disease of 2019 (COVID-19) in the Gulf Cooperation Council (GCC) countries: Current status and management practices. J Infect Public Heal 13: 839–842.

46. Nadjmabadi S (2010) Cross-border networks: Labour migration from Iran to the Arab countries of the Persian Gulf. Anthropol Middle East 5: 18–33.
47. Porcheddu R, Serra C, Kelvin D, Kelvin N, Rubino S (2020) Similarity in case fatality rates (CFR) of COVID-19/SARS-COV-2 in Italy and China. J Infect Dev Ctries 14: 125–128. doi: 10.3855/jidc.12600
48. Novel Coronavirus Pneumonia Emergency Response Epidemiology Team (2020) Vital surveillances: the epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19)—China, (2020). CCDC Weekly 2: 113-122
49. CDC COVID-19 Response Team, Bialek S, Boundy E, Bowen V, Chow N, Cohn A, Dowling N, Ellington S, Gierke R, Hall A, MacNeil J, Patel P, Peacock G, Pilishvili T, Razzaghi H, Reed N, Ritchey M, Sauber-Schatz E (2020) Severe outcomes among patients with Coronavirus Disease 2019 (COVID-19) — United States, February 12–March 16, 2020. MMWR 69: 343–346.
50. Contini C, Di Nuzzo M, Barp N, Bonazza A, De Giorgio R, Tognon M, Rubino S (2020) The novel zoonotic COVID-19 pandemic: An expected global health concern. J Infect Dev Ctries 14 :254–264. doi:10.3855/jidc.12671

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