

Differences and Similarities Between Coronaviruses: A Comparative Review

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ABSTRACT— *Today, humans fight powerful and active viruses that never take hold and do not know defeat, named coronaviruses. These viruses have start in 2002 and continued to grow and have changed their chains dramatically until now. They are known for having many similar features in common, and there are also structural differences between them. The most important reason that has turned coronaviruses into a pandemic is that this disease is easily transmitted by droplets near infected people, which leads to the spread of this virus faster worldwide. The more details known about coronaviruses that have profoundly affected humanity in the past and present and the diseases they cause, the more benefit in help designing an immune response or preventive vaccine to these viruses in the near future. In this article, coronaviruses, how they have been started and spread, and what differences and similarities are between them will be briefly covered here. The information of this investigation is taken from articles and the world health organization and are reviewed here. The goal is to document this information for future reference.*

Keywords— Coronavirus, SARS, MERS, COVID-19, Pandemic, China.

1. INTRODUCTION

The world may be surprised when the new Coronavirus developed and spread in most countries and regions of the world. Furthermore, world archives are full of pandemics and deadly diseases that wiped out hundreds of millions of people and caused crises that took many years to overcome. The most famous of these pandemics is the Black Plague [1], the Spanish Flu [2], and many other outbreaks that have changed the lives of many societies. Now in 2021, COVID-19 [3] [4] is still easily transmitted and infects many victims, and we do not know what is in store for us in the future. During a pandemic, to reduce the damage that may happen in many areas such as health, social and economic, disease development in the society must be under control. Governments in each country must report ways of transmitting the virus, signs and symptoms of the disease, and the effect of isolating sick and contacts from the public. The rate of spread of the virus can be reduced if society takes significant acts consciously and complies with the rules established to control the epidemic. Therefore, fewer people contract the virus, fewer people get sick, and fewer people need hospitalization, which will lead to a decrease in the number of deaths. For example, the Turkish Ministry of Health (T.C. Sağlık Bakanlığı) has published a complete file on ways to prevent the COVID-19 pandemic. This file contains four pages in Turkish language for Turkish citizens to save their lives from this virus [5]. Also, this platform is designed to learn about the COVID-19 virus and ways to prevent it.

Coronavirus is a family of viruses with one positive polarity encapsulated in RNA that can become a human pathogen with sizes up to 120 nm [6] [7]. All types of Coronaviruses are of animal sources [8] [9], such as bats or mice. Moreover, it has been observed that SARS-CoV, one of the viruses that cause the pandemic disease, is from civet cats [10] [11], MERS-CoV from camels [12], and COVID-19 may be transmitted by bats and transmitted to humans. Figure 1 shows a type of bat that is expected to be the main reason for the spread of COVID-19 according to an article published on the British BBC news site by Helen Briggs [13]. These viruses begin their period of activity in autumn and winter, causing mild or strong infections in the upper respiratory system of humans, as these viruses can mutate over time and lead to death. The diseases caused by coronaviruses are transmitted through contact with infected people. It is most often spread by breathing. Figure 1 (b) shows the ways of transmission of coronaviruses from bats to humans [14].

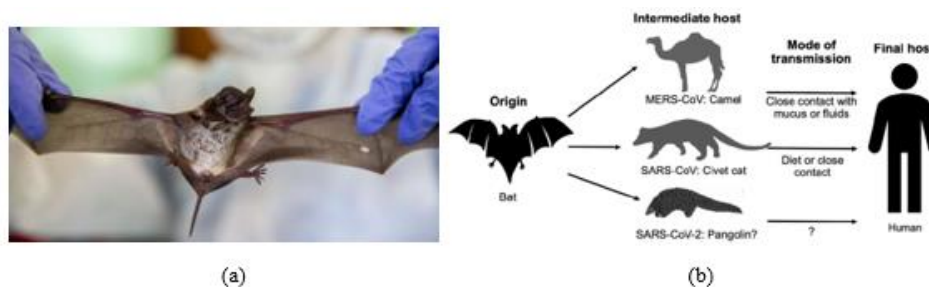


Figure 1: (a) Report by BBC about the bats. (b) The origins and intermediate hosts of COVID-19, SARS-CoV, and MERS-CoV.

Coronaviruses [15-18] have the characteristic of quick transmission between people if the necessary anticipations are not taken. Various ways of spreading the Coronavirus have been identified. The ways in which these viruses are transmitted are droplet pollution, contact with the person carrying the virus and talking with him/her, coughing, sneezing, breathing in a place where the virus is spreading, as droplets loaded with viruses spread in the air. In addition, the virus is transmitted by somebody inhaling these droplets from close range. The virus can also spread by depositing virus-laden droplets on various surfaces and objects. The person who touches this contaminated surface; may become infected with a virus by blowing the hand into the mouth, nose, or eyes.



Figure 2: Films covers that predicted the emergence of deadly viruses [downloaded from Google Images]

Before the emergence of the Coronavirus, several films predicted the emergence of deadly viruses that threaten the survival of the human race. The most famous films are a *Contagion* that has received more attention since the spread of the Coronavirus globally than it received during its release in 2011. However, the events of the film are similar to the emergence of the virus to a noticeable extent, as Its events revolve around a virus that appears in Asia that spreads quickly and causes thousands of deaths amid a government blunder in an attempt to control the mass panic and find a quick cure. Figure 2 presenting the film covers (like *Contagion*, *Train to Busan*, *28 Days Later*, *World War Z*, *Outbreak* and *The Flu*) that predicted the emergence of deadly viruses.

The primary purpose of this article is to present an overview of how coronaviruses have started and the number of infections and deaths these viruses have achieved and to display the differences and similarities between them. In addition, the ways of virus transmission, the symptoms caused by this virus that appear on the patient, and other information are reviewed. The contribution this article makes is to describe and document sufficient and concise information on coronavirus.

The rest of the article is organized as follows. Part 2 deals with a survey of coronaviruses, how they started, what symptoms they cause, and other information about them. In the part 3, the statistics of the spread of COVID-19 in each nation are presented in terms of the number of cases and deaths and a comparison between coronaviruses. Finally, the conclusions reached in this article are presented in Part 4.

2. THE CORONAVIRUSES

In this section, a brief review is presented about coronaviruses:

2.1 SARS-CoV Pandemic

Severe acute respiratory syndrome (SARS) [19-21] is the first outbreak of the Coronavirus, which is a severe acute respiratory syndrome disease. It has begun in China in February 2003 and affected twenty-nine countries with nearly 8,096 cases and 744 deaths. The main symptoms of the disease caused by SARS-CoV are high temperature, muscle pain, lethargy, cough, sore throat, and shortness of breath. Figure 3 illustrates the structure of SARS-CoV [22]. Laboratory outcomes of this disease are lymphopenia, thrombocytopenia, and high levels of hydrogen lactate. The viral load of SARS-CoV in specimens from the upper respiratory tract of the victims reached its highest value approximately three days after symptoms developed in those infected. As for specimens obtained from the lower respiratory tract, the viral

load had its highest value ten days after the onset of symptoms in the infected. That is why it is favoured at that time to obtain specimens from the upper respiratory tract for diagnosis of cases.

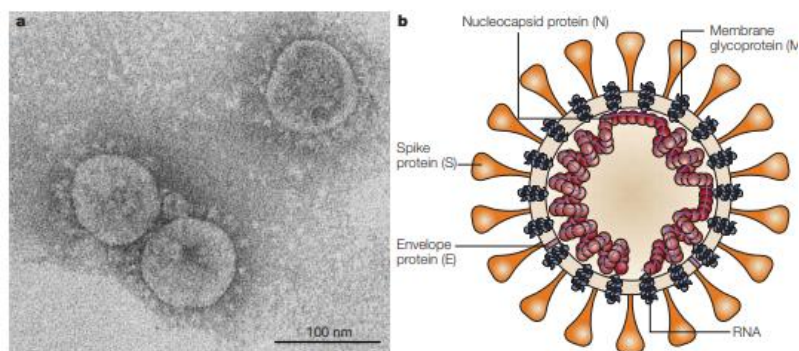


Figure 3: Morphology of the SARS coronavirus. (a) Electron micrograph of the virus. (b) Schematic representation of the virus

At that time, the use of plasma, Hyper immunoglobulin or human monoclonal antibodies of recovered individuals that contain neutral antibodies against the SARS virus is sufficient. Ribavirin and interferon-alpha-2b, which are among the antiviral agents, are tested separately and in integrated in both laboratory and animal studies, and are observed to give more reliable effects. In fact, these studies have not been tested on a sufficient number of people who are infected with this virus, meaning that not enough time is given to discover a way to treat and get rid of the virus. In the author's opinion, if that time is used by the person to follow up on the development of the virus and conduct many studies, COVID-19 would not have been very serious at this time. In addition, the administration of corticosteroids to the affected persons gave satisfactory results. For patients with breathing difficulties, oxygen therapy is utilised first, and then after that, invasive mechanical ventilation is applied when acute respiratory distress syndrome develops. The most critical people for the high death rate from SARS are 65 years and over. This is followed by the age group of 45-64 years. The least affected group is children, as is the case now with COVID-19. Figure 4 presents images in 2003 in China during the SARS pandemic, these images are downloaded from Google. The SARS pandemic is transmitted like COVID-19 between humans and they have the same symptoms, as it is less contagious, in addition to that its transmission is linked to the appearance of symptoms on the patient, unlike COVID-19, and this enabled the chain of transmission to stop. The researcher noted that the "SARS" virus is like other respiratory viruses seasonally, "it appears in the winter and stops in early spring."



Figure 4: SARS pandemic in China during 2003 [downloaded from Google images]

2.2 MERS-CoV Pandemic

Middle East respiratory syndrome (MERS) [23-25] is the first human coronavirus to taxonomically belong to the Cell lineage of the genus Betacoronavirus within the Coronaviridae family. MERS is first found to cause the disease in people in Saudi Arabia in 2012. This type of virus has resulted in nearly 2,500 cases and more than 800 deaths, and there are still sporadic cases. In Middle Eastern countries, MERS is spread to people by an infected camel. MERS is sometimes spread between people who are in close contact with others, such as those who care for or live with someone who is sick. Health workers and family contacts of patients are more likely to get sick. Most of the cases MERS have occurred in Middle Eastern countries like Arabia Saudi, United Arab Emirates, Qatar, Oman, Jordan and Kuwait. On rare occasions, MERS cases have occurred in other countries among people who travelled to the Middle East or their close contacts. In May 2015, the largest cluster of MERS infections outside of the Middle East occurred in South Korea, which has now ended. The main symptom of this disease is high temperature, cough, muscle pain, diarrhoea and vomiting. In addition to these symptoms, serious complications such as pneumonia and kidney failure have been noted. Figure 5 shows the structure of the MERS virus [26], while Figure 6 shows the methods of transmission of this virus from camels to humans and animals [27]. The values of the peak viral load for MERS-CoV in patients peak between 7-10 days after the onset of symptoms in samples from the upper respiratory tract, and on the eleventh day in those from the lower respiratory tract. Dyall et al. (2014) [28] have investigated several antagonist agents with potential therapeutic efficacy. Cyclosporine A, Mycophenolic Acid, Interferon Beta, Homoharringtonine, Cycloheximide, Anisomycin and Emitendine Hydrochloride Hydrate have been found to be the strongest activity in vitro against the Coronavirus [28]. According to

the report published by the World Health Organization, the age group with the fastest transmission of MERS is 50-59, while the second risk group is 30-39. Mortality rates appear most often at ages 50-59, then 70-79 years old.

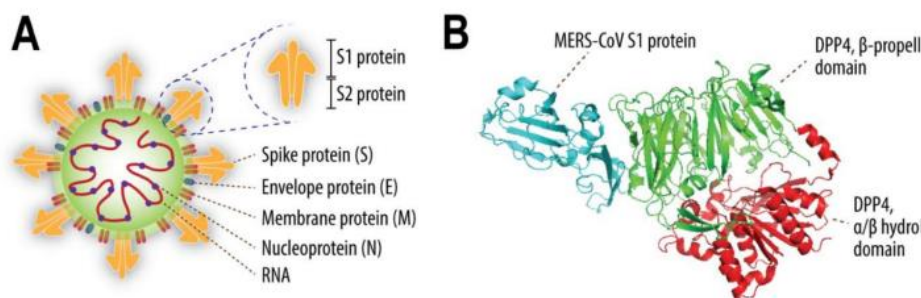


Figure 5: The structural of MERS-CoV, (A); a cartoon representation of MERS-CoV, (B). The S protein consists of MERS

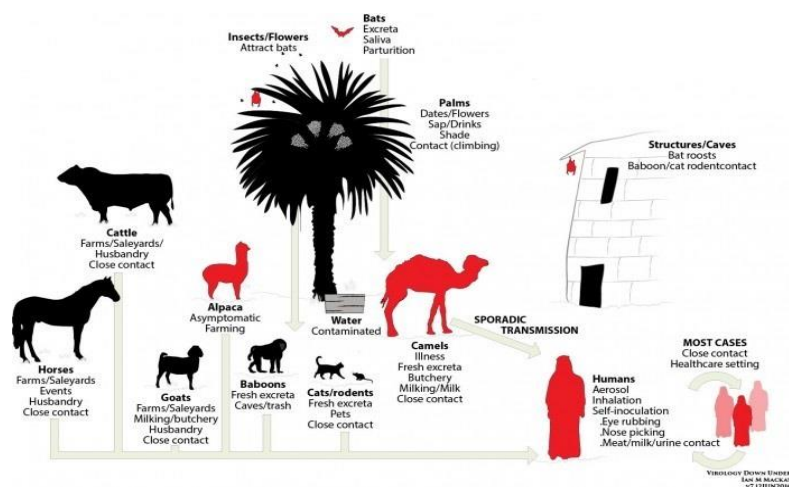


Figure 6: Diagram of the transmission and infection caused by MERS-CoV from camels to humans and animals.

2.3 COVID-19 Pandemic

COVID-19 [29-32] has become a pandemic shortly after the first case emerged. This pandemic has greatly affected people's lives, as until May 2021, a large number of victims have been killed, exceeding three million. The earth lives in the time of Covid-19, in which the number of infections and deaths increases day after day, even after the issuance of several vaccinations. However, the situation is still hazardous and not reassuring. Common symptoms of this disease: fever, cough, and shortness of breath (see Figure 8). In addition, pneumonia, acute respiratory failure, multiple organ failure and death have been observed in people with advanced disease. The ideal diagnostic method for identifying COVID-19 is quantitative real-time polymerase chain reaction (qRT-PCR) with a nasopharyngeal swab taken from a victim. In this method, accurate and sensitive results are collected using oligonucleotide probes defined with special fluorescent dyes. However, it has been remarked that chest tomography of patients is essential in determining the percentage of this virus in the lung because it allows diagnosing the disease and planning the diagnostic process. Laboratory outcomes for this virus exhibited decreased lymphocytes and increased C-reactive protein (CRP) and pro-inflammatory cytokines (such as IL-6, TNF- α , IL-1, IL-8). Moreover, immune cell inflammation has been observed in the infection sites in the lung and lymphocyte infiltration is minimal. These conditions can cause blood clotting and damage to multiple organs.

Figure 7 is a set of images captured in China showing the preventive measures taken by China to reduce the spread of the virus. A method used to treat COVID-19 is plasma therapy. This method involves the use of antibodies against this virus by people who recover and overcome this virus. This method is especially applicable to patients whose health condition is poor and who do not benefit from drug therapy. Children are noted to have less COVID-19 than adults, and clinical attack rates for patients in the 0-19 age group are insignificant. In fact, the effort of the elderly and chronically ill with COVID-19 is, unfortunately, more challenging and affects their quality of life in a significant way. COVID-19 transmission in children is usually from family or school. Children who get the virus in their bodies often get rid of the virus without showing any symptoms. During this period, the child is likely to infect his / her immediate environment with a virus. In addition, the virus burden of children under the age of 5 who overcome COVID-19 may be higher than adults. In such cases, the contagiousness of the child may increase. In New York State-USA, in May 2020, life and death rates for COVID-19 patients are 48% for the 75 or older age group, 25% for the 65-74 age group, 22% for the 45-64 age

group, and 5% for 44 ages. The first person to discover the existence of the COVID-19 virus is the Chinese ophthalmologist Li Wenliang, who has warned doctors of a fatal disease similar to SARS and more severe. However, the Chinese police asked him to "stop making false comments", and he was controlled to investigate charges of "spreading rumours." After that, he is dead by COVID-19.



Figure 7: COVID-19 pandemic in China during 2020 [these images downloaded from google images].

Symptomatic transmission is when a person spreads the virus while showing signs and symptoms of the disease after being infected with the virus. For example, a person with a cough problem, which is one of the common symptoms of COVID-19, causes virus-laden droplets to scatter into the air while coughing. Symptomatic transmission occurs when a healthy person breathes the scattered droplets ingesting the virus. Research on the ways of coronavirus spread continues worldwide. According to the latest information obtained, a person with COVID-19; The first 3 days after the onset of symptoms is when the contagion is at its highest. Contagiousness decreases in the later stages of the disease. Coronavirus incubation period; It refers to the time elapsed after the virus is ingested until symptoms begin to appear. The coronavirus incubation period is on average 5-6 days. In other words, a person begins to show signs of illness about 5 days after ingesting the virus. However, in some people, the corona incubation period may take up to 14 days. Therefore, contact persons are isolated for 14 days, which is the longest possible incubation period. Some people can spread the virus around during the corona incubation period. In this case, which is also called pre-symptom transmission, the person can transmit the virus to healthy people before showing any symptoms. In studies on the spread of the virus, it has been reported that some people were tested positive for coronavirus 1-3 days before they started showing symptoms. Based on this data, it has been observed that there is a possibility of spreading the virus before people enter the symptomatic stage. Incubation period transmission; It can take place through inhalation of the virus or contact with contaminated surfaces. It is wrong for people to think that they will not transmit the virus to their immediate environment because they do not show symptoms of COVID-19. Asymptomatic cases are those who do not show any symptoms despite carrying the virus in their body. Identifying asymptomatic people in the community is very difficult, as no symptoms are seen in the individuals in this group. Various studies have been conducted on virus spread from asymptomatic people to healthy people. However, these studies do not find a clear answer to the extent to which the transmission from asymptomatic persons is effective on virus spread. Some experts consider asymptomatic carriers to be a key factor in the expansion of COVID-19's domain. It should not be forgotten that individuals who appear completely healthy can be asymptomatic carriers. Coronavirus precautions should be strictly followed in contact with any person showing or not showing symptoms.



Figure 8: COVID-19 Symptoms [33]

3. COVID-19 STATISTICS WORLDWIDE

Documentation is one of the necessary methods of saving and arranging information and events that can be a source in the future to benefit from them. After the spread of the COVID-19 pandemic and its control over the lives of the

world's population, several sites and platforms have appeared that publish statistics that including the number of cases, the number of deaths, and the number of people who have recovered from this disease. These statistics require a documentation process in one article. In this section, the authors decide to document the statistics of COVID-19 disease and save them in this article from the first infection in Wuhan city until April 2021. In this section, the latest results published on the WHO website about the spread of the COVID-19 in all nations are reviewed. Table 1 shows the difference between coronaviruses in terms of first report, status, number of infections and treatment. Table 2 exhibits COVID-19 report as of 15th April 2021. In a study conducted by Mbagwu et al. from Nigeria [34], they are able to collect infection and death statistics in all nations of the world from the beginning of the outbreak until March 2020.

Table 1: The difference between coronaviruses until April 2021

	MERS-CoV	SARS-CoV	COVID-19 or SARS-CoV 2
First reported	Saudi Arabia 2012	China 2002	China 2019
Current Status	Active	No reports since 2004	Active
Infections	2521+	8098	137,000,000+
Treatments	None	None	None

Table 2: COVID-19 Report as of 15th April 2021 [35]

Nations	Cases - Cumulative Total	Deaths - Cumulative Total	Cases Reported in Last 7 Days
All Nations	137866311	2965707	5043855
United States of America	31029700	558238	488700
India	14074564	173123	1145990
Brazil	13599994	358425	499414
France	5069999	99145	231645
Russian Federation	4675153	104398	60319
United Kingdom	4378309	127161	16416
Turkey	4025557	34734	391632
Italy	3809193	115557	108800
Spain	3387022	76756	51509
Germany	3073442	79381	142590
Poland	2642242	60612	142735
Argentina	2579000	58174	150971
Colombia	2569314	66482	101078
Mexico	2286133	210294	29753
Iran	2143794	65359	159446
Ukraine	1903765	38658	99767
Peru	1659707	55489	61114
Czechia	1593847	28229	25999
Indonesia	1583182	42906	35806
South Africa	1561559	53498	7950
Netherlands	1369411	16848	50256
Chile	1094267	24548	51245
Canada	1078562	23392	57669
Romania	1016449	25605	27825
Iraq	949050	14836	53428
Belgium	935316	23603	19638
Philippines	892880	15447	73730
Sweden	885385	13720	43596
Israel	836504	6312	1119
Portugal	828857	16931	3826
Hungary	736982	24521	38492
Pakistan	734423	15754	34235

Bangladesh	703170	9987	43892
Jordan	676175	7987	25494
Serbia	651899	5846	22511
Switzerland	625103	9790	12069
Austria	580601	9530	17839
Japan	516121	9500	23246
Morocco	503664	8920	3976
Lebanon	502299	6778	16381
United Arab Emirates	489495	1541	13476
Saudi Arabia	401157	6781	6205
Bulgaria	380576	14871	16157
Slovakia	373950	10877	5480
Malaysia	365829	1353	11361
Panama	359121	6173	2208
Ecuador	350539	17400	10935
Belarus	338801	2383	8265
Kazakhstan	330319	3963	15217
Greece	304184	9135	19169
occupied Palestinian territory, including east Jerusalem	303470	3190	15635
Croatia	300900	6442	15135
Georgia	292244	3908	5838
Azerbaijan	291894	4009	15430
Bolivia	284183	12496	7293
Nepal	281564	3061	2796
Tunisia	276727	9480	11733
Dominican Republic	259260	3402	4323
Kuwait	251675	1423	10206
Republic of Moldova	243365	5466	5647
Ireland	242105	4812	2780
Paraguay	240141	4978	15405
Denmark	239532	2447	4601
Ethiopia	234405	3254	12861
Lithuania	230462	3730	7335
Slovenia	229076	4416	7184
Costa Rica	225343	3044	5497
Egypt	212961	12570	5668
Armenia	206142	3817	6013
Guatemala	205322	7057	6948
Honduras	196704	4873	4291
Qatar	192963	348	6762
Bosnia and Herzegovina	186372	7642	7124
Venezuela	176972	1815	7898
Oman	175633	1807	8948
Libya	170045	2834	4758
Nigeria	163911	2061	413
Bahrain	159964	569	8033

Uruguay	149430	1595	26367
Kenya	148128	2420	6763
North Macedonia	144111	4322	6383
Myanmar	142610	3206	61
Albania	128959	2331	1767
Algeria	118975	3141	971
Puerto Rico	117366	2174	7133
Estonia	116200	1064	3779
Republic of Korea	112117	1788	4519
Latvia	109088	2019	3912
Norway	105007	706	4860
China	103185	4856	182
Kosovo	99493	2012	4195
Sri Lanka	95737	604	1744
Montenegro	94856	1397	1055
Ghana	91477	763	468
Kyrgyzstan	91144	1540	1484
Zambia	90389	1229	1003
Cuba	89404	487	6803
Uzbekistan	85730	634	1408
Finland	82964	881	2548
Mozambique	68927	794	496
El Salvador	66816	2060	1325
Luxembourg	64334	784	1541
Cameroon	61731	919	4394
Singapore	60719	30	165
Afghanistan	57534	2533	591
Cyprus	53254	277	3888
Namibia	46051	592	1012
Côte d'Ivoire	45265	269	385
Botswana	43444	663	1734
Jamaica	43054	692	1654
Uganda	41237	338	191
Senegal	39560	1084	396
Thailand	37453	97	7143
Zimbabwe	37369	1548	385
Malawi	33891	1134	173
Sudan	32932	2194	288
Malta	29778	403	370
Australia	29451	910	72
Madagascar	29348	520	3221
Democratic Republic of the Congo	28714	745	304
Maldives	25844	67	653
Angola	23841	557	831
Rwanda	23672	317	631
Guinea	21106	136	552
Gabon	20971	129	706

Syrian Arab Republic	20555	1402	794
Mayotte	19757	168	267
Cabo Verde	19525	188	1311
French Polynesia	18680	141	37
Réunion	18425	135	917
Eswatini	18407	670	1042
Mauritania	18066	452	111
Mongolia	17823	29	5597
French Guiana	17806	95	488
Tajikistan	13714	91	0
Burkina Faso	13050	154	177
Haiti	12857	252	54
Somalia	12837	656	859
Andorra	12641	121	278
Belize	12513	318	36
Mali	12467	419	1626
Guadeloupe	12304	189	414
Togo	12214	117	713
Curaçao	11430	74	1245
Guyana	11277	258	640
Lesotho	10709	315	2
South Sudan	10403	114	106
Djibouti	10202	106	896
Aruba	10122	92	362
Congo	10084	137	0
Bahamas	9505	190	209
Suriname	9363	184	179
Papua New Guinea	9188	82	1349
Martinique	8887	59	724
Trinidad and Tobago	8511	146	297
Guam	7640	136	22
Benin	7611	96	96
Equatorial Guinea	7259	106	200
Iceland	6275	29	24
Gambia	5682	170	118
Yemen	5586	1084	535
Central African Republic	5465	74	63
Nicaragua	5407	180	41
Niger	5113	190	61
San Marino	5004	86	100
Cambodia	4874	35	1846
Chad	4662	167	56
Seychelles	4633	25	266
Saint Lucia	4355	64	51
Gibraltar	4277	94	2
Sierra Leone	4013	79	20
Comoros	3873	146	45

Barbados	3740	44	49
Guinea-Bissau	3694	66	31
Eritrea	3479	10	105
Burundi	3424	6	397
Jersey	3232	69	2
United States Virgin Islands	3005	26	60
Liechtenstein	2865	54	57
Viet Nam	2737	35	78
Monaco	2384	31	32
Turks and Caicos Islands	2360	17	16
Sao Tome and Principe	2268	35	13
New Zealand	2235	26	36
Sint Maarten	2196	27	32
Liberia	2071	85	5
Bermuda	1935	16	438
Saint Vincent and the Grenadines	1806	10	40
Saint Martin	1703	13	16
Isle of Man	1575	29	3
Bonaire	1502	14	50
Antigua and Barbuda	1201	31	28
Mauritius	1198	15	86
Timor-Leste	1103	2	268
Bhutan	929	1	29
Saint Barthélemy	928	1	18
Guernsey	821	14	0
Other	745	13	0
Faroe Islands	662	1	1
Cayman Islands	523	2	11
United Republic of Tanzania	509	21	0
Wallis and Futuna	446	5	14
Brunei Darussalam	221	3	6
British Virgin Islands	178	1	0
Dominica	165	0	0
Northern Mariana Islands	161	2	1
Grenada	158	1	2
New Caledonia	121	0	0
Fiji	68	2	1
Falkland Islands (Malvinas)	62	0	10
Lao People's Democratic Republic	53	0	4
Saint Kitts and Nevis	44	0	0
Greenland	31	0	0

Anguilla	29	0	4
Holy See	26	0	0
Saint Pierre and Miquelon	25	0	1
Montserrat	20	1	0
Sint Eustatius	20	0	0
Solomon Islands	19	0	0
Saba	6	0	0
Marshall Islands	4	0	0
Samoa	4	0	0
Vanuatu	3	0	0
American Samoa	0	0	0
Cook Islands	0	0	0
Democratic People's Republic of Korea	0	0	0
Kiribati	0	0	0
Micronesia	0	0	0
Nauru	0	0	0
Niue	0	0	0
Palau	0	0	0
Pitcairn Islands	0	0	0
Tokelau	0	0	0
Tonga	0	0	0
Turkmenistan	0	0	0
Tuvalu	0	0	0

4. CONCLUSIONS

The summary of this article is that more than 80% of people who have contracted the COVID-19 pandemic have recovered. This is an excellent indicator that may help in growing the vaccine. This article explains that coronavirus is in continuous development, especially after the emergence of the Indian COVID-19, which has swept India and killed many Indian citizens. It is necessary to comply with the recommendations determined by the experts in reducing the rate of corona transmission in the society. Except for mandatory situations, it would be beneficial for the person to stay away from crowded environments. It is recommended that people do not contact other people unless they have to. It should be kept in mind that the other party may also be carrying the coronavirus in cases of forced contact. Corona contamination distance has been determined by experts to be approximately 1.5-2 meters. Therefore, in cases where it is necessary to contact other people, it will be beneficial to have a gap of at least 2 meters between people. In addition, wearing masks on both sides can reduce virus spread by preventing people from spilling droplets into the air while speaking. In areas outside the home, everyone aged 2 years and over is recommended to wear a mask.

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