COVID-19 in Continental America

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Abstract

Background: In late December 2019, a coronavirus outbreak first occurred in Wuhan, China, and then spread worldwide, which became a major global emergency. This severe respiratory illness called coronavirus disease 2019 (COVID-19) is transmitted through respiratory droplets and contaminated surfaces.

Objectives: This study aimed to investigate the epidemiology of COVID-19 in continental America.

Methods: This study was an ecological study describing the epidemiological features of COVID-19 in the Americas. The data of identified definitive cases and deaths from this disease and other information were extracted from the reports of the World Health Organization and transferred to SPSS software (version 24). Furthermore, the case fatality rate was separately calculated for each country.

Results: The highest number of COVID-19 reported cases and the highest COVID-19 mortality rate were in the United States, with 72,186,963 and 1,896,955 cases, respectively. Moreover, the highest case fatality rate was reported as 9.38% in Peru.

Conclusions: The prevention of COVID-19 transmission in countries is possible with general vaccination and observation of social distancing. These measures reduce the transmission of COVID-19 and are effective ways to control this global health problem.

Keywords: COVID-19, Coronavirus, America

1. Background

The outbreak of an emerging respiratory syndrome occurred in Wuhan, China, in late December 2019 (1). The cause of the outbreak was a coronavirus, and the World Health Organization (WHO) officially named the respiratory illness coronavirus disease 2019 (COVID-19). The symptoms of this disease are severe fever and cough, pneumonia, respiratory infection, and lung infection (2). Elderly individuals with chronic diseases are more prone to severe cases of the disease (3).

Several similar outbreaks have been reported from Chinese cities (4). After initial research, bats were identified as the primary source of the disease (5). The worldwide spread of the disease led to the official declaration of COVID-19 as a pandemic by the WHO in March 2020 (6). In some countries, the spread of COVID-19 has been reduced and controlled; however, the general situation in the world is changing and getting worse, and the measures taken in most countries have not been effective (7). This pandemic is a great threat to all countries, especially the middle- and low-income countries (8).

This respiratory disease is transmitted mainly through droplets and hand contact with contaminated surfaces (9). The COVID-19 has been rapidly spreading worldwide and has caused a major health problem in populous countries that do not have adequate health care systems (10). The transmission of the disease from healthy carriers and limited access to testing to identify patients are important factors in the rapid spread of the disease (11). After the spread of COVID-19 in most countries, health interventions were carried out, including observing social distancing and enforcing traffic restrictions and quarantine laws (12). According to epidemiological estimates and statistical models, the death toll from COVID-19 in populous countries is likely to reach one million (13).

2. Objectives

This study aimed to investigate the epidemiology of COVID-19 in the Americas.

3. Methods

This study was an ecological study that examined the status of COVID-19 in continental America. The data on the total number of definitive COVID-19 cases and the total number of definitive COVID-19 deaths by country and the population of the Americas were extracted from the WHO reports ([14], [15]). This information was collected from the beginning up to June 30, 2021. The data were transferred to SPSS software (version 24), and the case fatality rate was separately calculated for each country using the following formula ([16]):

Case fatality rate (%) = (No of individuals dying during a specified period after disease onset or diagnosis / No individuals with the specified disease) × 100

4. Results

The total number of countries in the Americas, according to the WHO, is reported as 44 countries, the most populous of which is the United States of America with 322,180,000 individuals and the least populous of which are the Turks and Caicos Islands with 31,458 individuals. The highest and lowest numbers of confirmed cases of COVID-19 were related to the United States of America and Grenada, with 72,186,963 and 162 cases, respectively. In addition, the highest and lowest numbers of definitive mortalities due to COVID-19 were reported as 1,896,955 and 1 cases in the United States of America and Grenada, respectively. The highest and lowest case fatality rates were 9.38% and 0.33% in Peru and the Cayman Islands, respectively (Table 1).

5. Discussion

According to the results of this study, the most definite cases of COVID-19 identified in the Americas belonged to the three countries of the United States of America, Brazil, and Argentina, respectively. A study performed by Scannell Bryan et al., investigating the mortalities from COVID-19 in the United States, demonstrated that blacks were more likely to die than whites and the average age of death in Spain was lower than that of other races, with more than half mortalities ([17]). A study conducted by Alcendor, investigating the mortalities from COVID-19 in demographic minorities, showed that the mortality rate was higher in African Americans and Hispanics due to poverty, low economic status, and limited access to social and health services. They also had an underlying disease that increased their risk of death from COVID-19 ([18]).

The results of a study carried out by Asare et al. in the United States showed that more than 40% of deaths in patients with COVID-19 were in obese individuals, and there was no gender difference ([19]). In a study performed by Werneck et al., examining COVID-19 in Brazil, the lack of sufficient information on the transmission of the disease, social inequalities in access to health services, and overcrowding were identified as effective factors in disease transmission ([20]). The results of a study conducted by Fernández-Rojas et al., examining the causes of COVID-19 in Mexico, showed that the disease was more disseminated in sparsely populated cities, which may have been due to less access to diagnostic and health facilities and economic and social levels. Moreover, low economic and social levels and high prevalence of chronic diseases may increase the risk of COVID-19 in the residents of sparsely populated cities. In examining the relationship between occupation and risk of COVID-19, informal occupations and businesses were also high-risk, and the employees of various departments were low-risk, where high-risk occupations may have transmitted more due to high contact with different individuals ([21]).

An important recommendation after obtaining the results of this study is general vaccination with priority for the elderly chronic patients who are high-risk groups in case of COVID-19.

Footnotes

Table 1. Frequency Distribution of Definite Cases, Definite Mortality Cases, and Case Fatality Rates of Coronavirus Disease 2019 in Continental America

Country	Population	Total COVID-19 Cases	Total COVID-19 Mortality Cases	Case Fatality Rate
United States of America	322180000	72186963	1896955	2.63
Brazil	207653000	18488402	514092	2.78
Argentina	43847000	4423306	93142	2.11
Colombia	48653000	4187194	105326	2.52
Mexico	127540000	2507453	232608	9.28
Peru	31774000	2049567	192163	9.38
Chile	17910000	1553774	32849	2.11
Canada	36290000	1414134	26238	1.86
Ecuador	19385000	455743	21523	4.72
Bolivia	10888000	435568	16631	3.82
Paraguay	6725000	419764	12641	3.01
Panama	4034000	401322	6529	1.63
Uruguay	3444000	366915	5524	1.51
Costa Rica	48653000	364304	4648	1.28
Dominican	10649000	324364	3815	1.18
Guatemala	16582000	292674	9147	3.12
Venezuela	31568000	270654	3084	1.14
Honduras	9113000	260331	6922	2.66
Cuba	11476000	188023	1270	0.68
Puerto Rico	3474182	140021	1270	0.91
El Salvador	6345000	78766	2376	3.02
Jamaica	2881000	50080	1065	2.13
Trinidad and Tobago	1365000	32343	822	2.54
Suriname	541638	21360	512	2.40
Guyana	773000	19891	466	2.34
Haiti	10911819	18562	425	2.29
Belize	367000	13189	329	2.49
Bahamas	391000	12586	246	1.95
Curacao	158986	12332	126	1.02
Martinique	402119	12286	98	0.80
Aruba	108374	11132	107	0.96
Nicaragua	6150000	6604	191	2.89
Snit Maarten	37224	2613	33	1.26
Turks and Caicos Islands	31458	2424	18	0.74
Saint Martin	37224	2613	33	1.26
Cayman Islands	60413	614	2	0.33
Barbados	285000	4079	47	1.15
Bermuda	61695	2514	33	1.31
Saint Lucia	178000	5284	84	1.59
Antigua and Barbuda	90755	1263	42	3.33
Saint Vincent and the Grenadin	110000	2219	12	0.54
British Virgin Islands	34232	298	1	0.34
Grenada	107000	162	1	0.62
Saint Kitts and Nevis	55000	439	3	0.68

Abbreviation: COVID-19, coronavirus disease 2019.

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