Research Article

COVID-19 in Continental Europe

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Abstract

Background: COVID-19 is an emerging disease that was first identified in China and then spread to most countries around the world. The disease was caused by the coronavirus and led to restrictions in most parts of the world. Definitive causes have been identified, and mortality from the disease is high in continental Europe.

Objectives: This study aims to investigate the epidemiology of COVID-19 in continental Europe.

Methods: This was an ecological study and described the characteristics of COVID-19 in continental Europe. Data related to the definite cases of diagnosis and death due to this disease and World Health Organization reports were recruited and transferred to Excel and SPSS software. Case fatality rates were also calculated for each country.

Results: The highest confirmed number of diagnosed cases of COVID-19 was in Russia with 4,333,029 cases, and the highest number of deaths reported due to COVID19 was in the United Kingdom with 124,419 cases. The highest case fatality rates were from Bulgaria 4.08%.

Conclusions: COVID-19 is a highly contagious and deadly disease, and until an effective vaccine is available, the prevention of disease transmission is possible only through observing social distancing.

Keywords: COVID-19, Coronavirus, Europe

1. Background

The emerging disease of COVID-19 was caused by coronaviruses. It was first seen in Wuhan, China in late 2019. The disease was zoonotic and had signs and symptoms similar to those of acute respiratory syndrome. The disease could not be treated with routine medications. COVID-19 was transmitted by droplets. The disease was reported shortly afterward in Hong Kong, Macau, and Taiwan (1-5). The World Health Organization approved a pandemic of the disease in early March 2020 (6). This disease is one of the most important threats to human health today due to its high infectivity and case fatality rate (7). According to epidemiological models, several million deaths have been estimated in some of the most populous countries due to COVID-19 (7).

2. Objectives

This study aims to describe the epidemiological features of COVID-19 in continental Europe.

3. Methods

In this ecological study, the characteristics of COVID-19 in continental Europe were examined. Preliminary data of this study, which included information about the total definitive cases identified, total definitive cases of death due to COVID-19, and the population of countries, were extracted from the reports of the World Health Organization from the beginning to March 8, 2021, and transferred to Excel version 2016. Final calculations were performed using SPSS version 24 (8, 9). The case fatality rates were also obtained using the following formula (10).

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

4. Results

The total number of countries on the continent, according to the World Health Organization, is 52 countries, the most populous of which is Russia with 146,695,000, and the least populated is San Marino with 33000. The highest number of confirmed cases of COVID-19 is related

to Russia with 4,333,029 cases, and the lowest belongs to Monaco with 2023 cases. The United Kingdom had the highest number of confirmed deaths due to COVID-19 with 124,419 cases, and the lowest number of deaths due to this disease was in Monaco, with 26 deaths. The highest case fatality rate was in Bulgaria with 4.08%, and the lowest was in Iceland with 0.48% (Table 1).

5. Discussion

The largest number of definitive cases of COVID-19 detected in continental Europe belonged to Russia, England, and France, respectively. The results of a study by Zemtsov and Baburin, which examined the risk factors for mortality and morbidity from COVID-19 in Russia, showed that the increase in definitive diagnosis of COVID-19 in Russia was due to the addition of private laboratories to diagnose the disease and the use of public transportation system, such as buses and city trains. These vehicles had poor ventilation, which was effective in transmitting the disease from healthy carriers to others. Other important factors involved in the transmission of the disease were seasonal workers moving from the northern regions to industrial and densely-populated cities. The return of these workers, who were mostly young and possibly healthy and asymptomatic carriers, transmitted the disease from them to family members and relatives, especially the elderly and the chronically ill, and the disease was more severe and fatal in these people (11).

According to a study by Brandily et al., the spread of the disease was different in various regions and cities of France. Poor economic conditions and poor environmental conditions, including living in slums, played a major role in the disease transmission and mortality from COVID-19 (12). The results of a study by Pollán et al. in Spain showed that the central regions of the country were at high risk for COVID-19, and that social gatherings in these areas were effective in transmitting the disease (13).

The highest case fatality rates of COVID-19 occurred in Bulgaria, Bosnia, and Greece, respectively. In a study by Sudharsanan et al., comparing the fatality of COVID-19 in ten countries, the highest case fatality rate was reported in Italy and the lowest in South Korea, which was almost inconsistent with the results of this study (14). However, the high case fatality rate in some countries may be due to the lack of definitive diagnosis of COVID-19. Adherence to health protocols, such as the use of masks and social distancing, is still the only way to prevent the disease transmission.

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Table 1. Frequency Distribution of Definitive Identified Cases, Definitive Cases of Death, and Case Fatality Rates of COVID-19 in Continental Europe

Country	Population	Total Case COVID-19	Total Death COVID-19	Case Fatality Rates
Russian	143695000	4333029	89473	2.06
UK	65789000	4218524	124419	2.95
France	64721000	3836480	88099	2.30
Spain	43348000	3142358	70501	2.24
Italy	59430000	3067489	99785	3.25
Turkey	79512000	2780417	29030	1.04
Germany	81915000	2505193	71934	2.78
Poland	38224000	1801083	45317	2.52
Ukraine	44439000	1406800	27128	1.93
Czechia	10611000	1325291	21882	1.65
Netherlands	16987000	1120075	16540	2.04
Belgium	11358000	787891	22891	2.91
Sweden	9838000	684961	13003	1.90
Switzerland	8402000	559627	9278	1.66
Serbia	8820000	458439	4562	1.00
Austria	8112000	471820	8538	1.81
Hungary	9753000	468713	15988	3.41
Kazakhstan	17988000	268327	3389	1.26
Bulgaria	7131000	260308	10614	4.08
Georgia	3925000	272998	3591	1.32
Belarus	9480000	295511	2038	0.69
Armenia	2925000	175016	3225	1.84
Croatia	4213000	246514	5590	2.27
Azerbaijan	9725000	236768	3241	1.37
Moldova	406000	195252	4111	2.11
Greece	11184000	203978	6705	3.29
Slovakia	5444000	195468	4169	2.13
Bosnia	3517000	136898	5259	3.84
Denmark	5712000	214839	2379	1.11
Kyrgyzstan	2078000	195468	4169	2.13
Uzbekistan	31447000	214839	622	0.78
Ireland	4726000	223219	4422	1.98
Lithuania	2908000	202430	3336	1.65
Romania	19778000	107163	3195	2.98
Portugal	10372000	810094	16540	2.04
Albania	2926000	39014	822	2.11
Norway	5255000	73493	632	0.86
Montenegro	629000	79771	1059	1.33
Luxembourg	602005	56646	622	1.17
Finland	5503000	60904	767	1.26
Lativia	1971000	90331	1695	1.88
Estonia	1312000	76183	667	0.88
Tajikistan	7835000	13714	91	0.66
Cyprus	1170000	36878	233	0.63
Malta	429000	24398	334	1.37
Andorra	77000	11042	112	1.01
San Marino	33000	3922	76	1.94
Iceland	33200	6064	29	0.48
Liechtenstein	2908000	2663	53	1.99
Monaco	3800	2023	26	1.29