

■ Original Article

Epidemiology of COVID-19 in Albania During the First Year of the Pandemic

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Received: 27 June 2021 Accepted: 7 September 2021

ABSTRACT

COVID-19 is an infectious disease caused by a newly discovered strain of coronavirus, which affects the airway system in humans. This new version of the coronavirus became known in December 2019, after the spread of severe cases with pneumonia in Wuhan province, China which then spread worldwide causing a pandemic of international concern. Since the first confirmed case in Albania there have been 132,243 confirmed infections until May 25, 2021, of which 128,988 have recovered, 2,449 have passed away and 806 were active patients.

A descriptive study approach was used to determine the epidemiological characteristics of COVID-19 in Albania. The collected data includes the official number of confirmed cases: the active and recovered ones, as well as the number of deaths from day 1 (9 March) to May 25, 2021, distributed by gender, age and region.

Data shows that females are slightly more likely to get infected by COVID-19. The people who got infected the most in Albania were between the ages of 30 to 59 years old. Mortality rate is higher for males and the age group 70+ is the most affected one.

Similarities were found between the sex and age distribution of COVID-19 epidemiology in Albania and other countries across the world. A similar pattern of infection, recovery and mortality rate was identified which as vaccines are rolling out, could lead to a more universal response to the pandemic.

Keywords: COVID-19, coronavirus, pandemic, Albania

INTRODUCTION

COVID-19 is an infectious disease caused by a newly discovered strain of coronavirus, which affects the airway system in humans. This new version of the coronavirus became known in December of 2019, after the spread of severe cases with pneumonia in Wuhan province, China. These cases started spreading quickly worldwide forcing WHO to declare a public health emergency of international

concern on January 31, 2020 [1]. Albania, like the other countries in the region, could not escape the pandemic. The first COVID-19 confirmed case was reported on 9 March 2020 [2]. The first case was reported in Tirana, Albania, from where it quickly started spreading all over the country. Hundreds of thousands of people have been infected so far, most of whom have recovered, and many have passed away. According to WHO, over the week of 19-25 May 2021,

globally, the number of new COVID-19 cases and deaths continued to decrease, with over 4.1 million new cases and 84000 new deaths reported. The largest decline in new cases and deaths, was reported by the European Region followed by the South-East Asia Region. The Region of the Americas, Eastern Mediterranean, African, and Western Pacific Regions reported similar numbers of cases to the previous week [3].

As of May 25, more than a year since the first case was recorded in Albania, the number of newly reported coronavirus cases has declined precipitously. According to the last updates from the Ministry of Health and Social Protection, on May 25th, there were only 14 newly cases, 81 recovered cases, 43 hospitalized and 2 deaths recorded in the whole country [4].

The present work is conducted to describe the current situation of COVID-19 in Albania as well as the morbidity, mortality and epidemiology of COVID-9 during the first year of the pandemic.

METHODS

A descriptive study approach was used to determine the epidemiological characteristics of COVID-19 in Albania. The publicly available data were obtained from WHO, the Ministry of Health and Social Protection Albania, the Albanian Institute of Public Health and the official COVID-19 online platform in Albania: coronavirus.al. The collected data includes the official number of confirmed cases: the active and recovered ones, as well as the number of deaths from day 1 (9 March) to May 25, 2021, distributed by gender, age and region. In addition, data on the number of vaccinated people was collected and incorporated in the study. Correlation tests were conducted to test for possible relationships between the gender distribution of COVID-19 cases and the gender distribution of the Albanian population.

RESULTS AND DISCUSSION

The Morbidity

Sex distribution of COVID-19 cases

Since the first confirmed case on the 9th of March 2020, Albania has recorded a total of 132,243 cases until May 25, 2021, of which 806 active cases, 128,988 recovered and 2,449 deaths [5]. Out of the 132,243 confirmed cases in Albania, 52% are females. This distribution is almost identical across the four regions of Albania., as shown in **Table 1**.

Table 1. Sex distribution of COVID-19 positive cases across 4 regions of Albania

	Percentage of confirmed cases (sex distribution)	
	Female	Male
Region of Tirana	52.24	47.76
Region of Elbasan	52.92	47.08
Region of Shkodra	51.42	48.58
Region of Vlora	51.75	48.25
Albania	52.12	47.88

In order to explore the reasons of this distribution of COVID-19 cases in Albania, a correlation test was conducted to test whether there was any relationship with the sex distribution in the population level. According to the National Institute of Statistics Albania (INSTAT) the population of Albania in 2021 is 2.829.741 people, of which 1.419.741 are females and 1.409.982 are males [9]. The results of this test confirm that there is no strong positive correlation between the sex distribution of the Albanian population and the sex distribution of confirmed COVID-19 cases (Corr value: -0.06). This means that the sex distribution of the Albanian population has not had any effects on the level of infection between males and females and that there might be other factors that have caused this distribution.

Previous studies have shown that men and women are affected differently from infections and epidemics. From risk of exposure and biological vulnerability to the social and economic implications, individuals' experiences are likely to vary according to their biological and gender characteristics and their interaction with other social determinants. Understanding the role of sex and gender in the COVID-19 outbreak is essential to building an effective, equitable response to the pandemic [6]. According to Global Health 5050, in the 140 countries that have reported sex-disaggregated COVID-19 data, females are slightly more likely to get infected by COVID-19 [7,8]. However, more epidemiological studies need to be done to assess this difference as well as the reasons behind this distribution.

Age distribution of COVID-19 cases

According to the Ministry of Health and Social Protection in Albania, the age group that is affected the most from COVID 19 is 30-39 years old (19%) followed by the age groups of 40-49 years old (18%) and 50-59 years old (18%). This age distribution of infected patients in Albania shows that there are only a few slight differences between infection levels of certain age groups. It also shows that overall, the people who got infected the most in Albania were between the

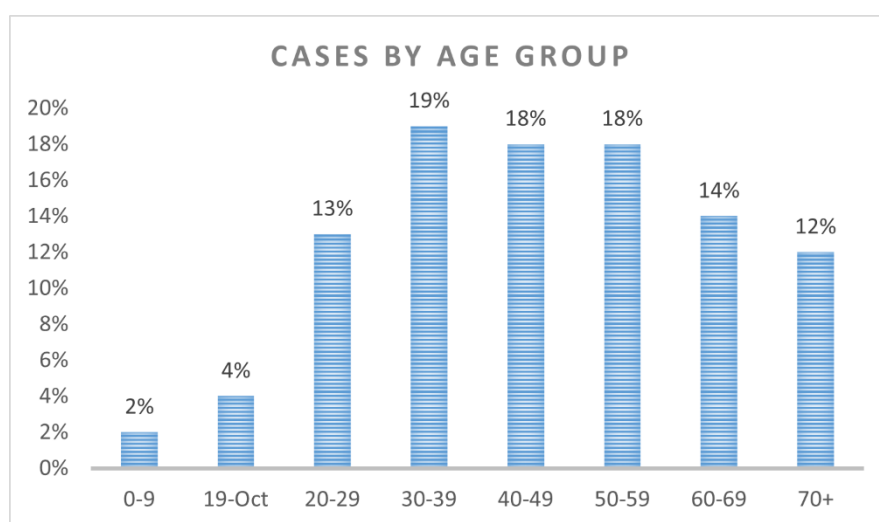


Figure 1. Distribution of COVID-19 positive cases according to their age

ages of 30 to 59 years old (55% cumulative), as illustrated in **Figure 1**.

A comparative analysis of COVID-19 patient's age groups shows a similar age distribution in countries such as Germany, India, South Korea, Australia, and Norway where the age group of 20–49-year-old were most vulnerable to infection [10]. In the meantime in countries such as Italy, the Netherlands and Spain, population groups of 50 years-above were the most vulnerable to COVID-19 infection. Germany, India, South Korea, Australia, and Norway have 47.26%, 62.2%, 51.26%, 50.54% and 48.54% infected people in 20–49 years, respectively; while Italy, the Netherlands and Spain have 72.8%, 74.66%, and 71.37% of infected people respectively in the age group of 50 years-above [10].

The Recovery

Sex distribution of recovered cases

As of May 25th, among the total number of positive cases, 128,988 patients have recovered from this disease. This attributes to a recovery rate of 97.54% (132,243 total cases on May 25, 2021, of which 128,988 recovered) [5]. The recovery rate for Albania seems to be higher than the global recovery rate, which, as of May 25th is about 91.23% [15].

Regarding the sex distribution of recovered patients in Albania, females (52%) have a higher recovery rate than males (48%) [5]. Although there is not a precise reason for this disparity, various possibilities have been proposed in regards to why this virus affects men and women in a different way. Generally, females are more resistant to infections than men. This could be because the X chromosomes improve the expression of key immune functions, and women have two X chromosomes rather than a single X as found in men [19]. Another possibility is that the

female sex hormones estrogen and progesterone can, respectively, help promote immune response and reduce inflammation. On the other hand, several factors including sex hormones and high expression of coronavirus receptors (ACE 2) in men but also lifestyle, such as higher levels of smoking and drinking among men as compared to women make them more vulnerable to the virus [11,12].

Age distribution of recovered cases

The highest number of the recovered COVID -19 patients in Albania belong to the age groups of 30-39 (17%) and 40-49 years of age (17%). [5] The age distribution of recovered patients corresponds with the age distribution of infected patients, since these were the age groups most vulnerable to COVID-19 infections in Albania.

There is a lack of studies about the timeline of COVID-19 patient recovery in regard to age or sex. According to a study in Israel, male and female patients aged >30 years had significantly longer recovery periods compared with younger patients. The average recovery time was between 13.239 to 14.814 days, lowest for women under 19 years and highest for men aged 50–59 years, respectively [13]. However, this average is not valuable for severe cases.

According to another study, the chances of recovering are lower among males as compared to females and decline with increasing age. The variation in infection rates and chances of recovery and deaths across age and gender might be based on biological variations like genetic and immunological dissimilarities [14,18]. Further verifications, considering both social and biological factors separately, need to be done.

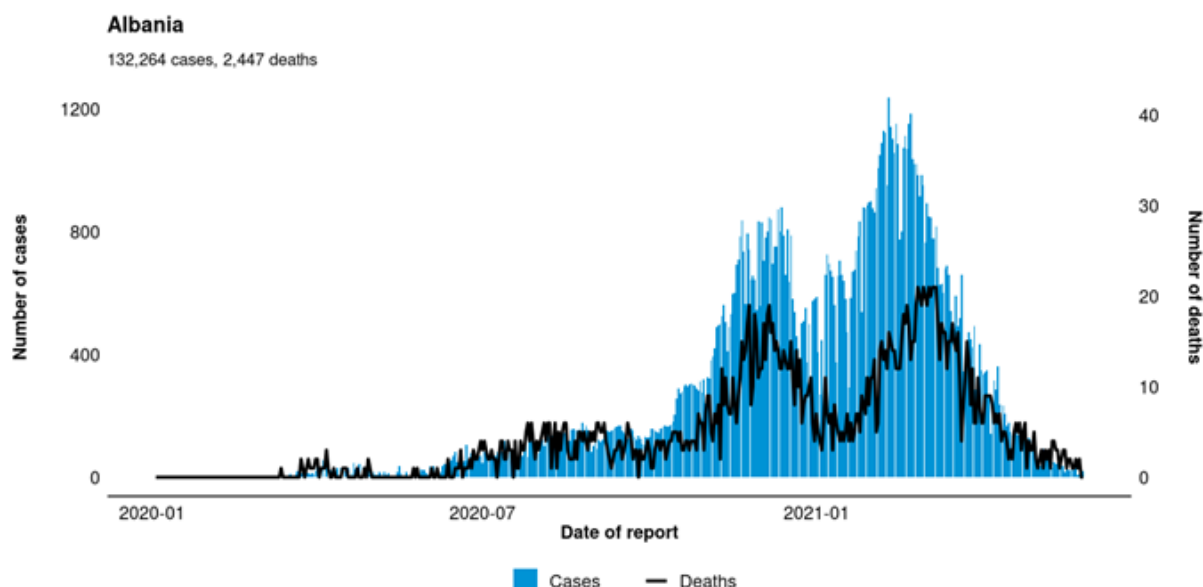


Figure 2. Number of cases and deaths in Albania

The Mortality

There have been 2449 deaths from COVID-19 in Albania until May 25th, 2021. According to WHO the Case Fatality Rate (Crude CFR) in Albania is 1.85%. [13] With such a fatality rate, Albania is ranked along the countries where the impact of the COVID-19 has not been very fatal, especially in comparison with countries like Italy (11%), Great Britain (8.2%), Belgium (7.6%), Sweden (6.3%) [10].

Since the first reported death of a COVID-19 patient in March of 2020, there has been a spike in deaths that correlates with the number of confirmed cases, as shown in **Figure 2**. In retrospective, the first spike in deaths and cases was back in July of 2020 after Albania's lockdown regulations were lifted. The other two spikes in the number of deaths and cases are seen during the months of December 2020 and February 2021.

While it is known for the up said reasons that men are more vulnerable to SARS CoV-2, studies have found that found that mortality in older people was 1.77 times higher for males than females [12,13]. In Albania the mortality rate varies from 71% in males to 28% in females, and this is seen across the four regions of Albania, as shown in **Table 2** [5].

A possible explanation of the sex distribution of COVID-19 mortality rate could be attributed to plasma ACE2 levels which were found to be highly correlated with immune signatures in lungs of males and older people and less correlated among females and younger people [16,17]. This means that the chances of infection and death due to COVID-19 are higher among elderly males.

Table 2. Age distribution of COVID-19 deaths across 4 regions of Albania

	Percentage of deaths (sex distribution)	
	Females	Males
Region of Tirana	24.77	75.23
Region of Elbasan	29.69	70.31
Region of Shkodra	31.25	68.75
Region of Vlora	37.84	62.16
Albania	28.04	71.96

In Albania, data shows that people belonging to the 70+ age group have a mortality rate of 48% which is higher than the other age groups, as shown in **Figure 3** [5]. Many studies have shown that the main reason why older age groups have a higher mortality rate is very much connected with the existence of comorbidities which are likely more severe with aging. According to a study, the age distribution of mortality by COVID-19, was similar between Japan, Italy and Spain, even though the number of deaths was quite different among them. In all three of these countries the age group of 70+ had the highest number of deaths [18].

The Vaccinated

As the pandemic of COVID-19 is still on going, effective therapeutic drugs for severe cases as well as more efficient vaccine administration are needed. There are now several vaccines that are being applied worldwide: AstraZeneca, Moderna, Pfizer BioNTech, Johnson & Johnson/Janssen, four vaccines for limited use in China and two vaccines for early use in Russia. However, there is still no specific prescription drug licensed to treat or prevent COVID-19 worldwide.

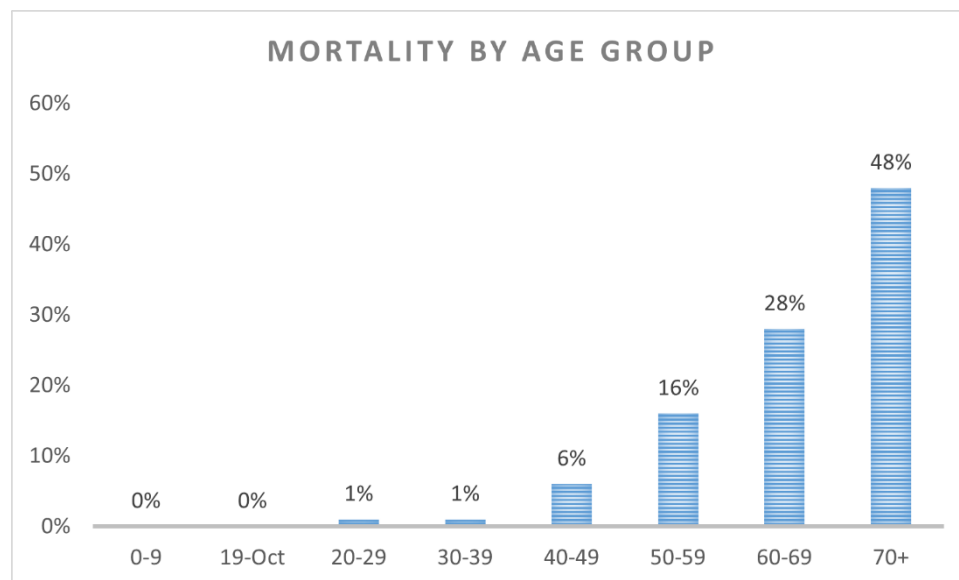


Figure 3. Mortality rate distributed by age group

On December 8, 2021, in the United Kingdom, the first person received the Pfizer BioNTech vaccine. Afterwards, the vaccination program was extended to other countries. As of 25 May 2021, a total of 1,545,967,545 vaccine doses have been administered globally [15]. More than 75% of all vaccines have been administered in just 10 countries [16].

Albania managed to get the first doses of vaccine on February 2nd, 2021. From then, until May 25th, 725,135 doses of Covid vaccines have been applied, of which 249,898 citizens have received both the first and the second dose [17]. The vaccines that have been administered are Pfizer BioNTech, AstraZeneca, Sputnik V and Sinovac.

As the number of newly cases continues to decrease, the early studies have shown effective rates of vaccination protection. However, further studies need to be done in order to show the vaccines efficacy and their side effects.

CONCLUSION

This descriptive study portrays the current situation of COVID-19 in Albania as well as the morbidity, mortality and epidemiology of COVID-19 during the first year of the pandemic. Data shows that there are similarities between the COVID-19 epidemiology in Albania and other countries across the globe, especially in regard to sex and age distribution of infection, recovery and mortality rates. This descriptive analysis identifies that females are slightly more likely to get infected by COVID-19. It also shows that, the people who got infected the most in Albania were between the ages of 30 to 59 years old, mortality rate is higher for males and the age group 70+ is the most affected one. A similar pattern of infection, recovery and mortality rate was identified which as vaccines are rolling out, could lead to a

more universal response to the pandemic. Further studies need to be conducted to assess the reasons behind this pattern of sex and age distribution of COVID-19 cases as well as the efficacy of vaccines in decreasing the rates of mortality and infection.

Author contributions: All authors were involved in concept, design, collection of data, interpretation, writing, and critically revising the article. All authors approve final version of the article.

Funding: The authors received no financial support for the research and/or authorship of this article.

Declaration of interest: Authors declare no competing interest.

Data availability: Data generated or analysed during this study are available from the authors on request.

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