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COVID-19, Public Health Policy and The Variant Dilemma: What Should Have Been Done That Was Not Done?

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ABSTRACT

The recent surge in the number of cases of confirmed SARS-CoV-2 infection in Europe raises an important question about the management of the pandemic by the health authorities in Europe in light of the emergence of the new Omicron lineages B.A. 4 and B.A.5 that need to be further investigated. This article, which highlights the existence of a one-to-one relationship between the peaks of the –COVID-19 pandemic in Europe and the economic slowdown of the affected nations, raises an important question as to what the reasons are that led many European governments to decide to relax some of the emergency measures. The question is of no small importance considering the timing, which could outline a cause-effect relationship, between the relaxations of some emergency measures in Europe (such as the nonmandatory use of FFP2 masks outdoors and indoors) and the increase in infections.

Keywords

COVID-19, Omicron variant, Vaccination campaign, Health policy, Health authorities.

Introduction

Recent years have been characterized by the emergence of human coronaviruses:

- severe acute respiratory syndrome coronavirus (SARS-CoV) in 2002 [1];
- Middle East respiratory syndrome coronavirus (MERS-CoV) in 2012 [2];
- And severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in 2019 [3].

Coronaviruses [4-6], which take their name from the "crown-like spikes" on their surface, are large, enveloped, single-stranded RNA viruses belonging to the family Coronaviridae and are at the origin of respiratory, gastrointestinal and neurological diseases.

SARS-CoV-2, the zoonotic [7-13] virus recognized to be the causative agent of coronavirus disease 2019 (COVID-19), whose first cases were detected in the city of Wuhan in China [14-22], changes, like all viruses, over time.

Following the indications of the Centers for Disease Control and Prevention [23]:

"Viruses like SARS-CoV-2 continuously evolve as changes in the genetic code (caused by genetic mutations [24] or viral recombination) occur during replication of the genome. A lineage is a genetically closely related group of virus variants derived from a common ancestor. A variant [25] has one or more mutations that differentiate it from other variants of the SARS-CoV-2 viruses. A recombinant is a variant created by the combination of genetic material from two different variants. As expected, multiple variants of SARS-CoV-2 have been documented in the United States and globally throughout this pandemic."

Such [26] mutations in the SARS-CoV-2 genome are an important matter since they may change the characteristics of the virus in terms of transmissibility, disease severity and impact on the effectiveness of available tools, i.e., public health measures, treatments and vaccines, and produce variants of concern (VOCs) [27]. Therefore, the study and monitoring of virus evolution through [28], for example, the Global Initiative on Sharing All Influenza Data (GISAID), should be of great importance for international and national health authorities given that any variant

may represent a hazard to global health. Such a situation raises a relevant public health policy issue, particularly in European countries [29] affected by the virus and Italy [30], regarding the ability of their national health systems, if any, to design an efficient surveillance system capable of reacting promptly and effectively while considering the devastating effects of the pandemic on their economic and social fabric.

An approach for the evaluation of the perniciousness of each coronavirus variant (and of its lineages) is to constantly monitor
- its contagiousness;
- the severity of the disease it causes; and
- the efficacy of vaccines.

Following the labeling system of the World Health Organization (WHO.), Greek alphabet letters are used to identify each variant. Table 1 lists some of the most common variants worldwide.

Table 1: List of Some of the Most Common Coronavirus Variants Worldwide.

World Health Organization Label	Origin	Year
Alpha	UK/US	2020
Beta	South Africa	2020
Delta	India	2020
Omicron	South Africa	2021

Alpha [31] represents B.1.1.7, which was first identified in the U.K. in 2020 and a few weeks later in the U.S.; Beta represents B.1.351, which was initially identified in South Africa in 2020; Delta represents B.1.617.2, which was detected in India at the end of 2020; and Omicron represents B.1.1.529, which was detected in 2021 in South Africa and spread to other countries, such as the U.S., U.K. and European countries, in the span of a few weeks and became the most common variant and source of contagion. Thus far, Omicron has given rise to several lineages (see Table 2), such as B.A.1, B.A.2 and B.A.3. More recently, two new Omicron lineages have emerged, i.e., B.A.4 and B.A.5 [32], as the origins of the current surge of the pandemic in many nations worldwide [33] and in particular in Europe and Italy, where a real summer wave is occurring that was not foreseen by the Italian health authorities.

Table 2: Omicron and Its Subvariants (Source: World Health Organization).

WHO label	Lineages	Country first detected	Year and month first detected
Omicron	B.A.1	Botswana and South Africa	November 2021
Omicron	B.A.2	South Africa	November 2021
Omicron	B.A.4	South Africa	January 2022
Omicron	B.A.5	South Africa	January 2022

At this stage, the question is: did Italian policy-makers take all precautions [34], considering the possibility of unwanted and unpredictable effects of the new Omicron lineages, namely, B.A.4 [35] and B.A.5, or were the choices made inappropriate, contributing to the current peak of infections? To answer this question, more information is needed.

One of the adverse effects of the COVID-19 pandemic [36], particularly in Europe and Italy, was the unprecedented economic crisis and deep recession (the rate of growth of the real gross domestic product in Italy dropped to -8.9% and to –5.9% in Europe in 2020).

The Italian tourism sector, whose contribution to the real GDP in 2019, before the start of the pandemic, was approximately 13%, was among the sectors most affected by the pandemic, which substantially reduced its activities in 2020. The resumption of tourism activities during the summer of 2021 was only a panacea, and only thanks to funds from the European recovery and resilience plan (issued by the European Commission to incentivize the economic upswing from the pandemic crisis) has there been a partial recovery. However, what many were waiting for, not only in the tourism sector but also in all other sectors, and in particular the manufacturing sector, was the relaxation of many or at least some of the emergency anti-COVID-19 measures during the summer season.

In other words, many economic policy decisions have been affected by the health emergency [37] through the various measures, such as lockdowns, necessary to stop the spread of the pandemic, especially in the early stages [38] when there were no effective vaccines. However, were health policy decisions also affected by the economic crisis?

Figure 1A: Growth rate of the real GDP in Europe over the same quarter of the previous year (% change, based on seasonally adjusted data). Source: Eurostat-Euroindicator.

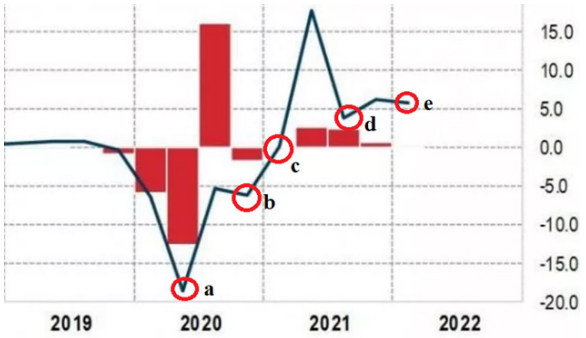
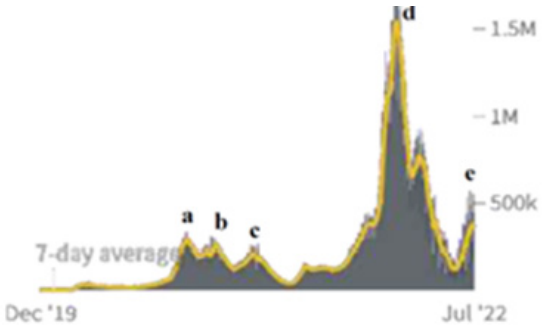


Figure 1B: Cases of confirmed SARS-CoV-2 infection reported in Europe. Source: Reuters COVID-19 tracker.

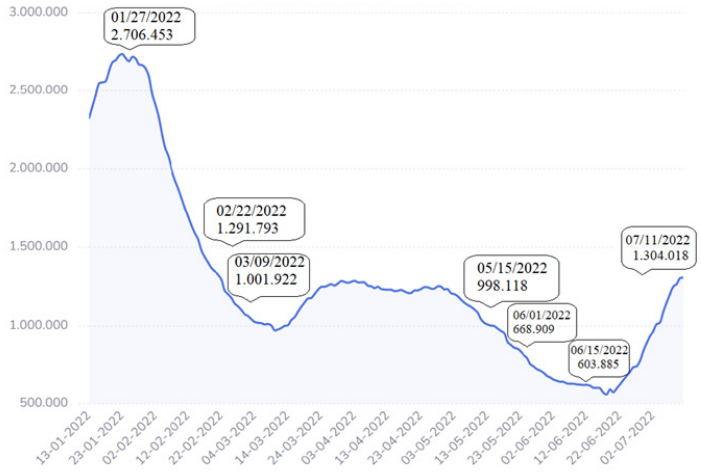


Considering Figure 1A, which represents the rate of growth of real GDP in Europe from 2019 to the second quarter of 2022, and Figure 1B, which represents the daily number of confirmed SARS-CoV-2 infections in Europe on a 7- day average, there seems to be a one-to-one relationship between the five waves (a = beginning of the 1st wave in February 2020, b = beginning of the 2nd wave in October 2020, c = beginning of the 3rd wave in March 2021, d = beginning of the 4th wave in November 2021, e = beginning of the 5th wave in June 2022) of the COVID-19 pandemic with the surge in the number of cases of confirmed SARS-CoV-2 infections (characterized by the increase in stricter emergency measures taken by the European nations affected by the waves); a drop (points a, b, c, d and e) happened simultaneously in the growth rate of the European real GDP.

Furthermore, after four waves [39-43] and the economic slowdown in Europe and around the world [44] and after the delivery of the first, second and third doses of the vaccine [45,46], there was a debate in the Italian and European media where many government representatives started talking about the possibility, having reached a sort of 'comfort zone', of relaxing some of the restrictive health emergency measures as a means to incentivize recovery from the economic crisis.

Improvements in relevant parameters in Italy during recent months are shown in Figure 2 and Table 3 and include the following:

Figure 2: Cases of confirmed SARS-CoV-2 infection reported in Italy in the last six months (Source: Epidemiology for Public Health –The COVID-19 Task Force of the Department of Infectious Diseases and the IT Service–Istituto Superiore di Sanità).



	January 27, 2022	May 15, 2022
Confirmed SARS-CoV-2 infections	2,706,453	998,118
Daily deaths	389	62
% of positive tests performed	15	14
Daily intensive care unit admissions	1645	347

Table 3: Data on the Number of Confirmed SARS-CoV-2 Cases, Daily Deaths, % of Positive Tests Performed, and Daily Intensive Care Unit Admissions.

(Source: Italian Civil Protection – https://opendatadpc.maps.arcgis.com/apps/dashboards/b0c68bce2cce478eaac82fe38d4138b1)

- The number of
o cases of confirmed SARS-CoV-2 infections, which fell from 2,706,453 as of January 27, 2022 to 998,118 as of May 15, 2022;
o daily deaths. which fell from 389 as of January 27, 2022 to 62 as of May 15, 2022;
- the percentage of positive tests performed, which decreased from 15 as of January 27, 2022 to 14 as of May 15, 2022;
- and the number of daily intensive care admissions, which dropped from 1645 as of January 27, 2022 to 347 as of May 15, 2022.

These data were at the base of the recent decision of the Italian government to lessen emergency measures in Italy [46-50]. As of June 1, 2022, the green pass is no longer required to enter Italy from EU countries and from other foreign countries. From June 15, 2022, wearing FFP2 masks [51] outdoors and indoors is no longer required, with a few exceptions. These decisions were of great help for the tourism sector given that the summer season had just begun, and it is the most important season for the sector.

However, as seen in Figure 2, something unexpected happened [52], i.e., the increase in the number of infected people (from 603,885 as of June 15, 2022 to 1,304,018 as of July 11, 2022) and the beginning of the fifth wave of the pandemic in Italy and in other European nations, such as Portugal.

What can be expected now? It is difficult to say if the summer peak has been reached. A feasible solution is the acceleration of the delivery of the third and fourth doses of the vaccine to the population by the Italian and European governments. However, there is another matter that is perhaps even more important, and that is the need for the various pharmaceutical multinationals to invest in research and in resources to update the existing vaccines and make them more effective against the most recent mutations of the virus genome and against future mutations.

A lesson can and should be learned from the recent surge in COVID-19 cases in Europe, i.e., that nothing or little was done to prevent [53] (such as continuing the testing of the population [54]) the increase in the number of infections, and that the vaccination campaign for the third and fourth doses should not have been neglected.

This demonstrates that the health surveillance system in Europe and Italy [55] must be reorganized and that a greater share of national public spending [56] should be dedicated to the health system along with hiring of new qualified personnel.

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