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THE WORLD FACING THE PANDEMIC DIFFUSION OF THE SARS-COV-2 VIRUS IN THE WORLD AND CRISIS MANAGEMENT IN POLAND

INTRODUCTION EPIDEMIC DISEASES – A COMPANION OF MANKIND FROM THE DAWN OF ITS HISTORY

Epidemic diseases have accompanied mankind since the dawn of its history. Among other things, they are reflected in the Bible¹, appearing in the form of at least two of the ten so-called the plagues that struck Egypt. The smallpox epidemic that spread in the Roman Empire in the 2nd century and killed about 1/3–1/4 of the population is one of the oldest and well-described². Plague, known as the Black Death killed half the population of Europe in the 14th century³. In 1918, the entire European continent was covered by the so-called Spanish – a form of flu that claimed about 50 million people⁴. Entering the Polish courtyard in times not so distant from the present day, one can mention one of the last smallpox outbreaks in Europe, which appeared locally in Wrocław in the summer of 1963. The city was paralyzed for several weeks and fenced off from the rest of the country. 99 people fell ill, seven of them died⁵.

¹ *Biblia. Pismo Świąte...* t. 3. (2009); Szamocki G. (2007: 52–53); Hergesel T. (1981: 107–108).

² Załuski W. (2012: 76); Supady J.J. (2009: 80).

³ Supady J.J. (2009: 80).

⁴ Wnęk J. (2014: 16–17); Supady J.J. (2009: 83); Krajewska H. (2020: 28–29).

⁵ Trzaskowska G. (2008).

VIRAL PATHOGENS – AS CARRIERS OF EPIDEMIC DISEASES

Viral pathogens (Greek: *pathos* – suffering, and *genes* – producer of something), as the factors responsible for causing the epidemic diseases, were widely identified in the world only in the 1980s⁶. The first was Human Immunodeficiency Virus (HIV), which killed about 40 million people.

Research since that decade has uncovered, among others, the pathogens of hemorrhagic fever (which first appeared in Marburg in 1967), Ebola (in the Democratic Republic of the Congo, 1976), severe respiratory distress syndrome SARS (in 2002) – defined by its specific structure as “coronavirus” – and another variant, MERS-Cov (in the Middle East, 2012)⁷.

Several major factors have been identified for the emergence and recurrence of human viral pathogens. A combination of environmental and social changes is believed to be responsible for local outbreaks of infection. The emergence of infectious diseases in previously infection-free regions is mainly due to transmission of the virus through international trade and travel⁸. Recent examples of such spread include: ZIKV in Brazil in 2015 (which moved to the country from the Pacific Islands, possibly during the 2014 FIFA World Cup, causing the Zika fever epidemic)⁹ and another variant of the SARS virus – SARS-CoV-2 – which appeared in Wuhan (China, Hubei Province) in December 2019¹⁰.

THE SPREAD OF THE COVID-19 EPIDEMIC AROUND THE WORLD

On February 11, 2020, the disease caused by SARS-CoV-2 was officially named COVID-19¹¹. After 84 countries and territories had already reported the outbreak of the disease – thus contradicting the initial assumption that the contagion would

⁶ Figas A. (2020: 373–375).

⁷ Jacob S.T., Crozier I., Fischer W.A., Hewlett A., Kraft C.S., de La Vega M.-A., Soka M.J., Wahl V., Griffiths A., Bollinger L., Kuhn J.H. (2020). <https://www.nature.com/articles/s41572-020-0147-3#Abs1> (accessed on: 24.08.2022).

⁸ Figas A. (2020: 376).

⁹ Musso D. *Zika Virus Transmission from French Polynesia to Brazil*. https://wwwnc.cdc.gov/eid/article/21/10/15-1125_article (accessed on: 24.08.2022).

¹⁰ Duszyński J., Afelt A., Ochab-Marcinek A., Owczuk R., Pyrc K., Rosińska M., Rychard A., Smiatacz T. (2020: 12).

¹¹ *Ibidem*: 72.

end with the arrival of spring – on March 11, 2020, the World Health Organization (WHO) declared a pandemic¹².

Within two years (by August 2022) COVID-19 reached 227 countries and dependent territories. By then, a worldwide pandemic had caused 590,631,265 people to become ill and 6,439,905 patients to die¹³. Thus, the disease rate was 826 people per million inhabitants, and the global mortality rate due to COVID-19 – 1.09% of patients. More than 10 million people fell ill in 13 countries, most of them in the United States – over 95 million (fig. 1).

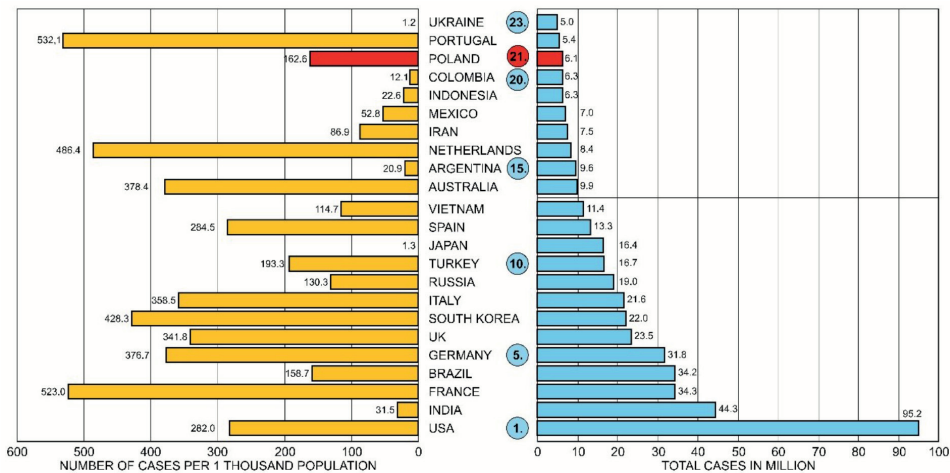


Fig. 1. The largest number of cases of Covid-19 (on August 9, 2022)

Source: author's own elaboration based on the data from Worldometer website

Most deaths (over 1 million) were also recorded in the United States. Next in terms of the number of fatalities were: Brazil (680,000), India (527,000), Russia (383,000), Mexico (328,000), Peru (215,000), Great Britain (185,000), Italy (173,000), Indonesia (157,000), France (153,000), Germany (145,000), Iran (143,000), Colombia (141,000), Argentina (129,000), Poland (117,000), Spain (111,000), Ukraine 108,000) and South Africa (101,000)¹⁴ (fig. 2).

¹² Sobczyński M. (2023: 23).

¹³ <https://www.worldometers.info/coronavirus/> (accessed on: 24.08.2022); *Koronawirus. Mapa Polski i świata*. „Wirtualna Polska. Wiadomości”, 27.XII.2022. <https://wiadomosci.wp.pl/koronawirus-mapa> (accessed: 27.12.2022); WHO Coronavirus (COVID-19) Dashboard. *Situation by region, country, territory and area*. <https://covid19.who.int/table> (accessed: 28.12.2022); *COVID-19 pandemic by country and territory*. „Wikipedia”. https://en.wikipedia.org/wiki/COVID-19_pandemic_by_country_and_territory (accessed on: 28.12.2022).

¹⁴ Worldometer website. <https://www.worldometers.info/coronavirus/> (accessed on: 24.08.2022).

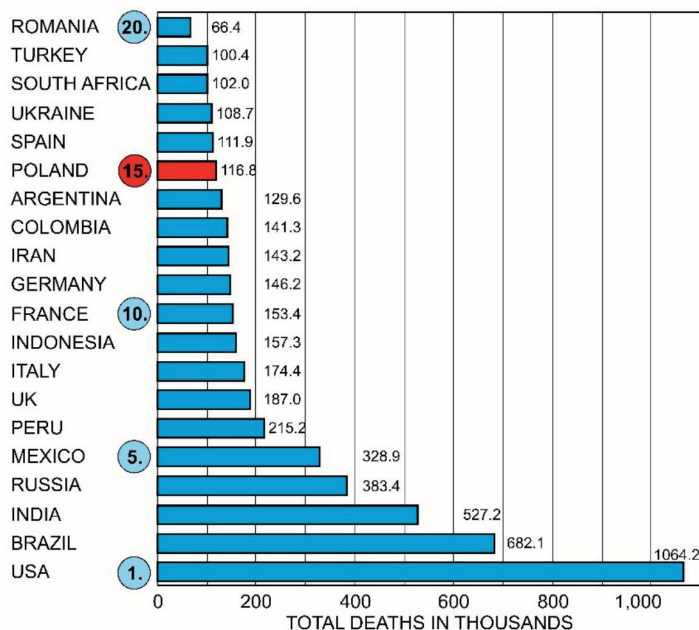


Fig. 2. The largest number of fatalities (on August 9, 2022)

Source: author's own elaboration based on the data from Worldometer website

After more than two years, there were practically no countries and dependent territories without coronavirus cases. The fewest cases of Covid-19 until August 2022 were recorded in Saint Helena (2), in Tuvalu (8) and the Vatican (28)¹⁵. Until then, there were no Covid-19 deaths in only 6 territories (among others in the Falkland Islands, Niue). These are isolated archipelagos or countries that do not accept COVID-19 patients in hospitals (such as Vatican).

An important indicator of the progress of the SARS-CoV-2 coronavirus pandemic is the number of deaths per 1 million inhabitants¹⁶. In this respect, Peru (almost 117,000) ranks first in the world, followed by the four Balkan countries: Bulgaria, Bosnia and Herzegovina, North Macedonia, Montenegro and Hungary¹⁷. Thus, the top ten in terms of the number of deaths due to Covid-19 included,

¹⁵ <https://www.worldometers.info/coronavirus/> (accessed on: 24.08.2022).

¹⁶ The number of cases per 1 million inhabitants is a slightly misleading category, because microstates come to the fore, where with a small population even a small number of cases gives a high rate. So counting per 1 million inhabitants, the largest number of people fell ill in the Faroe Islands (theoretically 703,687). Among the 48,800 inhabitants of this archipelago, 35,000 people with covid-19 make up more than 70% of the population.

¹⁷ Watóła J. *Dlaczego Polska bije rekordy zgonów na COVID. „Jest tolerancja działania”*. <https://wyborcza.pl/7,75398,27984851,polska-bije-rekordy-zgonow-na-covid->

apart from one Latin American country, as many as 11 so-called post-communist countries of Eastern Europe. This is the result of the poor health care system inherited by these countries from the previous regime and still maladjusted. Poland was in the 19th place in this classification (fig. 3).

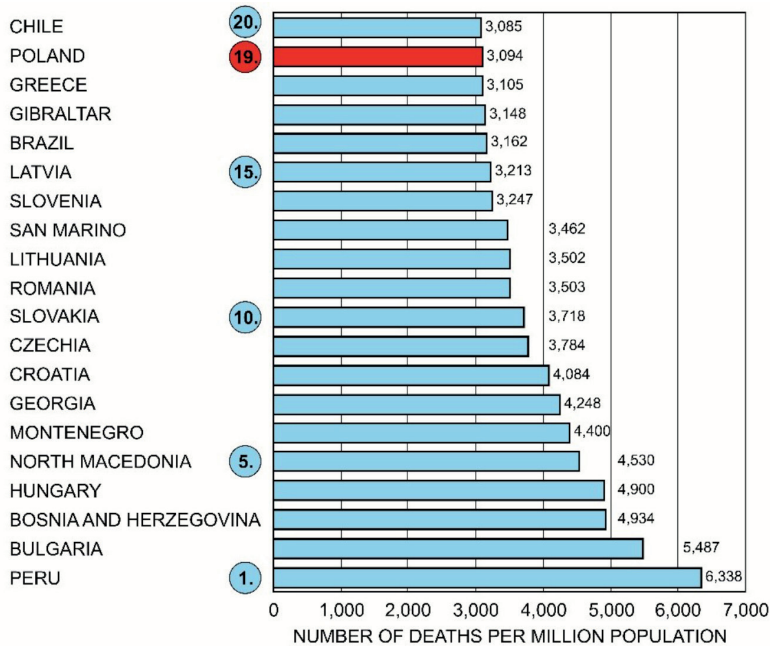


Fig. 3. The number of deaths per 1 million (on August 9, 2022)

Source: author's own elaboration based on the data from Worldometer website

Mass testing is a very important factor in the pandemic control process. By the beginning of August 2022, only 4 countries had carried out over 300 million tests (United States – 1088 million, India – 878 million, Great Britain – 553 million, Spain – 471 million). With 37 million tests, Poland was ranked 29th, ahead of Colombia and Argentina¹⁸.

However, much more important than the total number of tests is their relation to the size of the tested population, i.e. the number of tests per million inhabitants. The top ten in this category includes very rich countries, mainly Western

[-jest-tolerancja-dziadostwa.html](#) (accessed on: 24.08.2022); Pawłowska D., Gadomska A. *Sto tysięcy ofiar COVID-19 w Polsce. Do tego trzeba dodać 80 tys. nadmiarowych zgonów.* <https://biqdata.wyborcza.pl/biqdata/7,159116,27979625,sto-tysiecy-ofiar-covid-19-w-polsce-do-tego-trzeba-dodac-80.html> (accessed on: 24.08.2022); <https://www.worldometers.info/coronavirus/> (accessed on: 24.08.2022).

¹⁸ <https://www.worldometers.info/coronavirus/> (accessed on: 24.08.2022).

European (Denmark, Austria, Spain), Middle Eastern countries (the United Arab Emirates), as well as micro-countries and dependent territories (Gibraltar, Faroe Islands, Bermudas). The highest testing rate in the world (22 million per 1 million inhabitants) was recorded in Denmark, where statistically every citizen was tested almost 22 times¹⁹. Poland took 102th place in this classification (with an index of almost 1 000 000, i.e. less than one test *per capita* – fig. 4), accompanied by countries such as: Saint Vincent, Samoa and Eswatini.

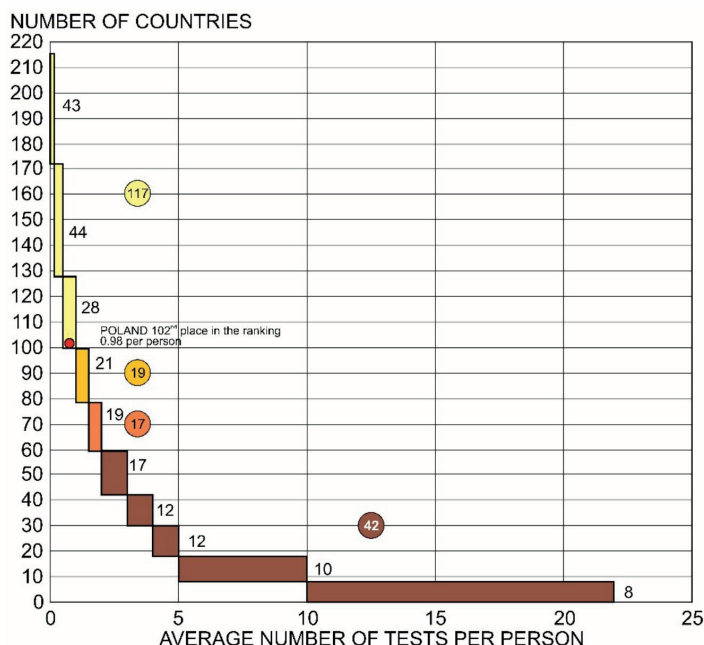


Fig. 4. Average number of tests per person (on August 9, 2022)

Source: author's own elaboration based on the data from Worldometer website

SARS-COV-2 VIRUS DIFFUSION IN POLAND

The virus reached Poland (and other Central and Eastern European countries) about 100 days later after it appeared in China²⁰. Western Europe was already at the epicenter of the pandemic at that time. The main reasons for the later appearance of the virus in this part of the Old Continent were: lower mobility of the

¹⁹ Watóła J. *Dlaczego Polska bije rekordy zgonów...* (accessed on: 24.08.2022); <https://www.worldometers.info/coronavirus/> (accessed on: 24.08.2022); Sobczyński M. (2023: 32).

²⁰ Sobczyński M. (2023: 25).

inhabitants, no mass events (such as music festivals and football matches of the Champions League), a different approach to diagnosis than in the West (resulting in lower infection detection rates).

The analysis reveals the existence of several large areas of disease concentration: densely populated regions with a large scale of commuting (Upper Silesian conurbation and agglomerations of Warsaw, Tricity, Wrocław, Szczecin and Poznań – fig. 5), a high percentage of the elderly population (centers of large and medium-sized cities, rural regions of southern Poland) and large share of multi-family block housing (making difficult to maintain social distance)²¹.

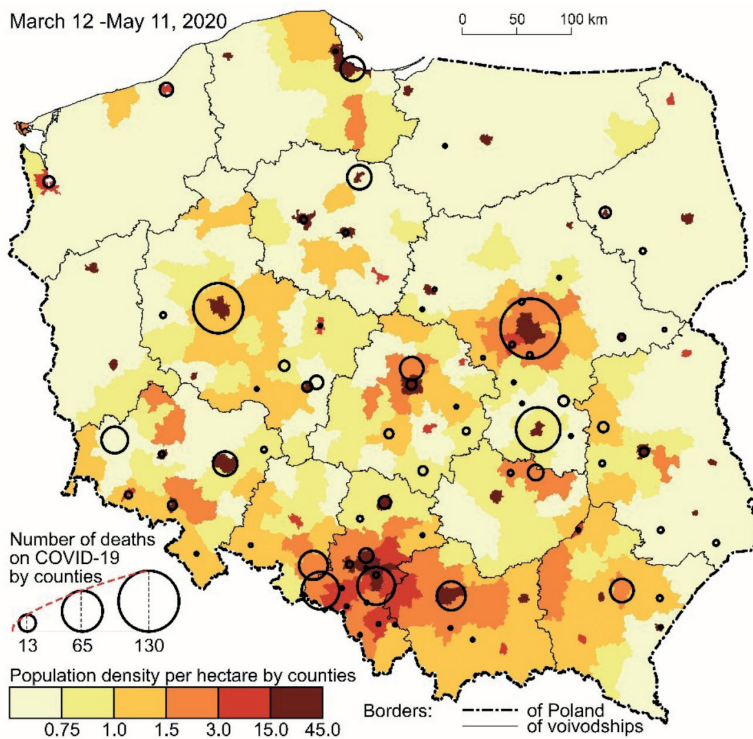


Fig. 5. Number of deaths due to COVID-19

Source: author's own elaboration

²¹ Raciborski F., Pinkas J., Jankowski M., *et. al.* 2020. <https://www.mp.pl/paim/en/node/15430/pdf>; <https://doi.org/10.20452/pamw.15430> (accessed on: 28.12.2022); Śleszyński P. (2020b: 30–31, 2020c: 5–19); Śleszyński P., Nowak M.J., Błaszke M. (2020: 427–444); Śleszyński P. (2020a: 53–55); Krzysztofik R., Kantor-Pietraga I., Spórna T., 2020. <https://doi.org/10.1080/15387216.2020.1783337>; Kowalski M. (2020).

August 10, 2022 six administrative provinces exceeded the number of over 400,000 cases of disease: Mazowieckie, Śląskie, Wielkopolskie, Małopolskie, Dolnośląskie and Pomorskie²². The first of these voivodeships, where the capital agglomeration is located, recorded the highest number of Covid-19 cases (almost 950 thousand). The smallest number of people fell ill in the Opolskie Voivodeship (over 151,000), which is one of the least urbanized administrative regions in Poland (fig. 6).

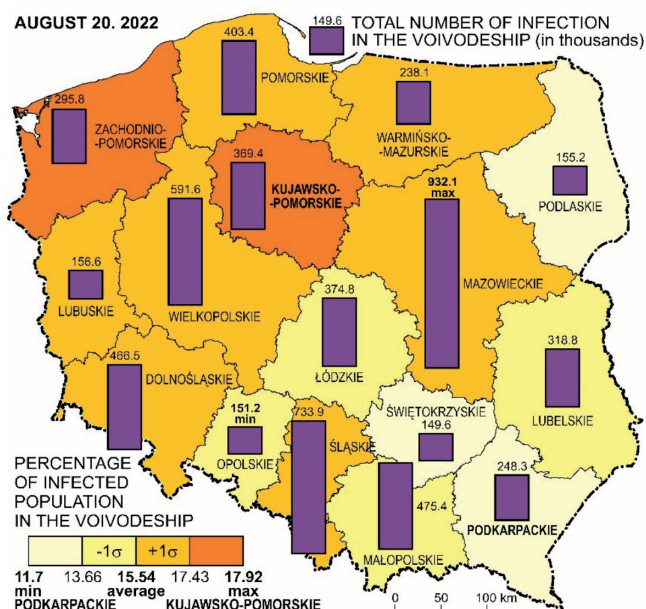


Fig. 6. Number of infections due to COVID-19 in voivodeships

Source: author's own elaboration

In the same provinces, the highest number of people died due to COVID-19. Most victims – almost 15 thousand – was recorded in the Mazowieckie and Śląskie voivodeships (fig. 7). Nowhere was the number of victims lower than 3,000, with the fewest deaths recorded in the Lubuskie Voivodeship (3,175)²³.

In turn, taking into account the number of deaths from Covid-19 per 1,000 inhabitants, the worst situation was in Lubelskie and Kujawsko-Pomorskie voivodeships, where 7,807 and 7,254 people died respectively (fig. 7). The high value of this indicator, especially in the eastern part of Poland (Lublin region),

²² <https://tvn24.pl/polska/koronawirus-w-polsce-mapa-zakazen-ile-szczepien-ile-nowych-przypadkow-wykryto-20-sierpnia-2022-4344739> (accessed on: 21.08.2022).

²³ *Ibidem*.

was largely due to the small number of people vaccinated and the less developed health care network compared for example to the Warsaw agglomeration and the Silesian conurbation.

The high mortality rate per 100 Covid-19 patients resulted from the same causes. The highest value of this indicator was similarly achieved in eastern and south-eastern Poland (fig. 8) – Podkarpackie (2.88), Świętokrzyskie (2.77), Lubelskie (2.45) and Podlaskie (2.39)²⁴.

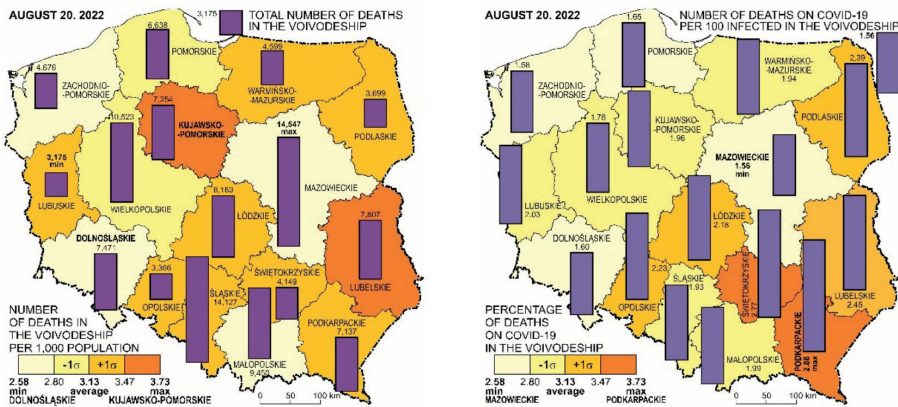


Fig. 7–8. The number of deaths due to COVID-19 by voivodeships – in total (including per thousand people; fig. 7) and per 100 infected (along with the percentage distribution of the dead by voivodeships; fig. 8)

Source: own study

PANDEMIC SITUATION MANAGEMENT DILEMMAS

Since the beginning of the epidemic in Poland (to August 20, 2022), the authorities have confirmed 6,142,917 infections. 116,881 people died due to COVID-19²⁵.

Poland took first place in Europe in the category of excessive deaths. In 2020, 477,000 people died (as much as 69,000 more than in 2019). 2021 was even worse when 519,000 people died (over 40 thousand more than the year before). These were the highest mortality rates in Poland since the end of World War II. The analysis shows that Poland achieved a 68.9% increase in deaths in 2021, while the EU average was 22.9%.

²⁴ *Ibidem*.

²⁵ *Koronawirus. Mapa Polski i świata*. „Wirtualna Polska. Wiadomości”, 27.XII.2022. <https://wiadomosci.wp.pl/koronawirus-mapa> (accessed on: 27.12.2022).

From the very beginning of the pandemic, most of the victims (65%) were people over the age of 70²⁶ (fig. 9). In the fourth wave of the pandemic – when everyone had a chance to get vaccinated – 83% of all deaths are unvaccinated. Among young people (up to 44 years of age) this indicator exceeds 90%.

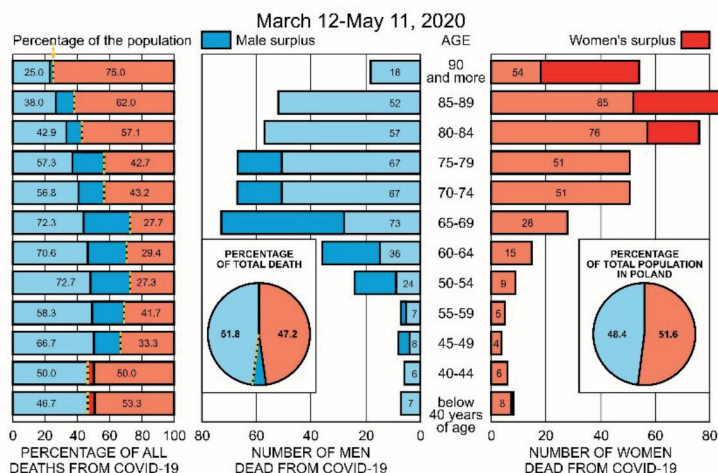


Fig. 9. The number of deaths due to Covid-19 in Poland by age and gender

Source: author's own elaboration based on the data collected from the official announcements of state institutions

When we look at government actions during a pandemic, we can see that the level of restrictions did not always match the intensity of the pandemic. With the arrival of the first wave of the pandemic (March 10, 2020), the first lockdown was introduced on. All mass events in the country were cancelled at that time, students switched to remote learning. State borders, hairdressing salons and a ban on entering the forest have been closed. Over time, however, the economy gradually thawed, and despite the still high daily infection rate (400), presidential elections were held (first and second rounds). The effect of the restrictions introduced at that time was the obligation to wear masks in public places.

In the second wave of the pandemic (since August 2020), the government introduced the division of the country into poviats with different levels of risk, where appropriate restrictions were in place (in some, for example, cultural events did not take place). In November 2020, when a record number of deaths were recorded, the slopes were closed under the sanitary regime and then (during the regime) reopened, as were cinemas, swimming pools, theaters and concert halls.

²⁶ Pawłowska D., Gadomska A. *Sto tysięcy ofiar COVID-19 w Polsce...* (accessed on: 24.08.2022); Watóła J. *Dlaczego Polska bije rekordy zgonów...* (accessed on: 24.08.2022).

With the arrival of the third wave (March 2021), shopping malls, kindergartens, nurseries, hair salons were closed; Then we also had days with the highest daily number of infected (among others, on March 26, 35,000 new cases were diagnosed). In May, the gradual lifting of restrictions began.

The fourth wave (October 2021) was characterized by a daily number of new diagnosed cases exceeding a thousand. New restrictions have been introduced consisting in reducing the limit of unvaccinated people in restaurants and hotels, closing discos. An exception to this type of games was New Year's Eve, which was not subject to any quantitative restrictions²⁷.

At the turn of March and April 2022, the state authorities lifted most of the restrictions, including the wearing of masks. However, they limited access to tests, thus hindering the fight against the pandemic. According to the assumptions of the new policy of the Ministry of Health, tests can only be performed on the recommendation of a doctor.

There are several reasons for the higher mortality rate due to COVID-19 in Poland than in other countries. One of them is the poor health care system, inherited by this country after the so-called communist regime and still not adapted to the new realities. It is characterized by: chronic underfunding, permanent but ineffective reforms, low work culture, sometimes simple under-education (there are hospitals that treat patients in the intensive care unit according to the schemes from 30 years ago, where 99 patients [out of 100], who are connected to a respirator, dies, e.g. in the Łódzkie, Małopolskie and Podlaskie voivodships)²⁸.

From the beginning of the fight against the epidemic, the method of financing it had many imperfections. The state has launched 36 hospitals focused on the treatment of Covid-19, including 14 temporary hospitals organized by state-owned companies. Several temporary hospitals were built with unimaginable sum of money, including one at the National Stadium – the largest in Poland, where the beds were only partially occupied for many days (the cost of its adaptation amounted to PLN 18 million), and the transformation of a private facility in Wrocław into a temporary hospital (for PLN 75 million) is the subject of a parliamentary investigation.

The government's Covid-19 testing strategy has had a very negative impact on the effective fight against the pandemic. The tests were expensive and access to them was limited, because they were only performed on a person with four symptoms of COVID. As a result, the positive rate rose to a very high level, and thousands of patients were infecting others because they could not get into the tests.

Equipping hospitals with respirators and masks was a procedure close to crime. The Ministry of Health contracted the purchase of ventilators to an arms dealer

²⁷ Pawłowska D., Gadomska A. *Sto tysięcy ofiar COVID-19 w Polsce...* (accessed on: 24.08.2022).

²⁸ Watōła J. *Dlaczego Polska bije rekordy zgonów...* (accessed on: 24.08.2022).

who was internationally prosecuted for this activity. The offer for the equipment, which was twice the market price at the time, was largely not realized. Hospitals received only part of the order. In addition, the equipment was unusable as it turned out to be non-compliant with EU standards²⁹.

The government forced the state-owned Copper and Metallurgy Combine to buy 22 million masks in China. The purchase also turned out to be non-compliant with European standards and unsuitable for use in hospitals. The masks ended up in the government's strategic material stores.

Numerous studies conducted on the effects of the pandemic in Poland have shown its significant impact on many areas of the economy³⁰, including tourism and hotel services³¹.

CONCLUSIONS

One million people died in Poland during the two years of the pandemic (2020–2021). That's over 180,000 more than in the two years before the pandemic (2018–2019). In addition to covid-19, the cause of more deaths than in previous years was the poor health of the society, mainly inappropriate lifestyle, poor nutrition, late reporting to the doctor with symptoms of the disease.

The pandemic also indirectly contributed to the increase in deaths. Patients who did not develop COVID-19 not only had difficult access to treatment, but were often simply deprived of it. This situation resulted in delays in the diagnosis of other diseases, discontinuation of treatment by these patients, which in many cases led to death.

In terms of testing citizens (per 1 million inhabitants), Poland was, as mentioned, 102th in the world (fig. 10). It occupied the last place in the EU, and in Europe it was ahead only of Moldova, Albania, Bosnia and Herzegovina and Ukraine.

Undoubtedly, the government saved on testing citizens at the expense of losing their health and even the lives by physically weaker, sick retirees, and allowed the epidemic to run uncontrolled, which also hit the health of the younger population and deeply undermined the foundations of the economy.

²⁹ A trader who mysteriously died in June 2022 was operating under the guise of the government's Intelligence Agency. It seems that the operation (the purchase of respirators) was planned by the services not to purchase equipment necessary to protect the health of citizens, but to increase the operating budget of the services.

³⁰ Chowaniak K. (2020: 10–15).

³¹ Napierała T., Leśniewska-Napierała K., Burski R. (2020: 4697). <https://doi.org/10.3390/su12114697>

A positive element of the government's crisis management strategy was widespread vaccination (although at the beginning of August only 63% of Poles used it). As a result, society has become more resilient and patients are experiencing mild symptoms of Covid-19.

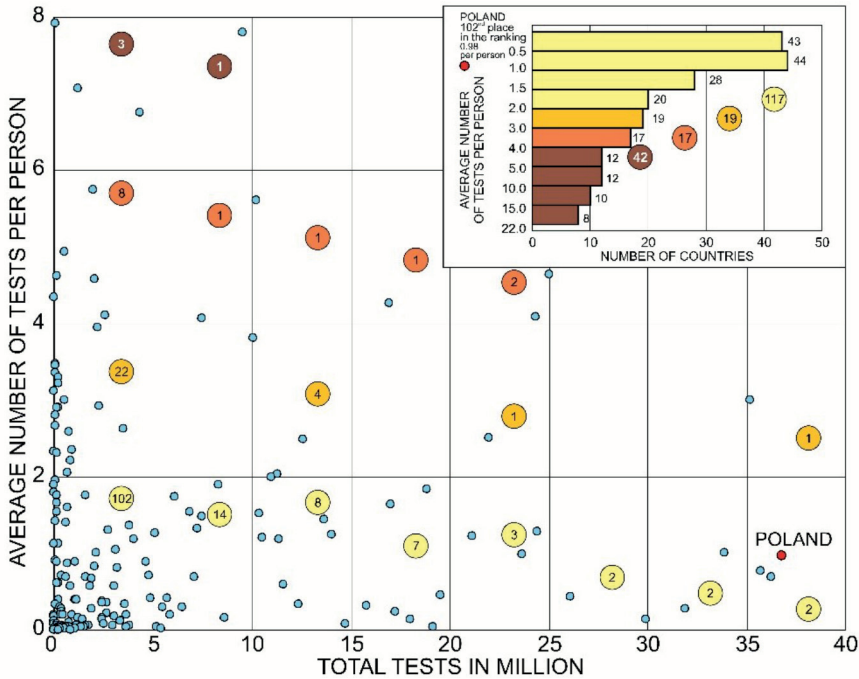


Fig. 10. Total tests in milion (on August 9, 2022)

Source: own study

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