

Demographic and social issues of the pandemic

Irina E. Kalabikhina¹

¹ *Lomonosov Moscow State University, Moscow, 199911, Russia*

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Abstract

The article begins with a small paragraph on why it is necessary to carefully assess operational data on morbidity and mortality from coronavirus. Further, the author discusses the complex of possible geo-spatial, demographic, socio-economic, socio-cultural and political factors of unequal impact of morbidity and overmortality from COVID-19 on various social groups and territories; hypothesize about the demographic and gender consequences of the pandemic and its accompanying economic recession in the short-term and long-term period. The author comes to the conclusion that the pandemic will have minor demographic consequences or won't have any. And despite a number of negative effects, the pandemic offers a window of opportunity for the development of gender equality.

Keywords

coronavirus, COVID-19, operational data, gender equality, consequences, demography

JEL codes: J11, J12, J13, J16, J18, I10, I14, C82

Introduction

These days, humanity is experiencing one of the great shocks over the past 100 years: the coronavirus pandemic. We will hope that the pandemic of the early 21st century will take incomparably fewer lives than the pandemic of the early 20th century or the world wars of the 20th century. But the very fact of the pandemic, which first struck mainly developed countries, is an impetus to rethink principal theoretical and practical concerns.

Firstly, the price and value of human life has increased significantly over the past half century. And it's not just assessments in comparable currency with regards to discounting. The absolute fact is that the value of human life has become so high that the governments of developed countries, with the approval of the population, make decisions to pay a high economic price for the possibility of saving as many lives as possible. I stress: not elites, but the entire population. That is

why we condemn the scenario where the health care system is unable to even attempt helping the dying person; doctors must choose whom to help survive, and society takes no action by saving funds and waiting for the end of the fast-flowing pandemic. In future, we will probably revise the economic losses (without social distancing people get infected, do not work, do not consume, do not invest, therefore, the costs increase (Bodenstein et al. 2020)) but this does not eliminate the urgency of the choice to be made at the critical moment in the state of high uncertainty.

Secondly, our confidence in defeating infections has failed. For a long period, it hinged on Omran's victorious theory of epidemiological transition (Omran 2005) which described the change in structure of causes of death. One of the core prerequisites of this theory is a significant reduction in the proportion of deaths from infectious diseases (in the context of the transition from exogenous to endogenous causes of death). The academic community was not embarrassed either by the HIV/AIDS epidemic, which severely reduced life expectancy of the people in Africa, or by the emergence of new and mutation of old pathogens; the rise of new infections; deaths due to influenza, viruses, pneumonia in older ages with increased life expectancy; infectious origin of many so-called endogenous diseases. We believed infections are defeated in principle, we know a way to fight new infections by creating vaccines and we keep everything under control. Perhaps the transition in mortality is not a one-way path, but either movement in a circle or in a spiral, and we are dealing with short and long cycles in the dynamics of the structures of causes of death (seasonality, viral cycles, etc.), even if endogenous causes of death prevail at the last turn of the spiral. The latest pandemic won't disrupt that algorithm, but it doesn't make the study of the above cycles any less interesting.

The story is not yet complete and there is a dramatic shortage of data. But we are already asking ourselves questions about the factors of increased morbidity and mortality from coronavirus, the consequences of a pandemic accompanied by an economic crisis that arose partly from the fact that we have made the choice to save as many lives as possible.

The article begins with a small paragraph on why it is necessary to carefully evaluate operational data on morbidity and mortality from coronavirus. I then argue on a set of possible morbidity and mortality factors and the perceived demographic and gender consequences of the pandemic and recession.

How to read operational coronavirus morbidity and mortality data

At first glance, it seems that operational information on morbidity and mortality from COVID-19 comes quickly and for all countries. We can see daily updates on information on the numbers of diseased and deaths on international and Russian data portals (CSSE 2020; Stopcoronavirus.RF 2020). The main indicators used for operational assessments are the number of confirmed cases, the number of deaths, morbidity (number of confirmed cases per 100,000 of population), lethality (number of deaths per 1000 of confirmed cases), mortality (number of deaths per 100,000 of population). However, it is necessary to be very careful in using this data to assess the dynamics of incidence and mortality from coronavirus not only between countries but also within one country. Here are few points that make the data incomparable and do not reflect the entire picture of what is happening.

1. The methods of diagnosing the disease vary, a different set of criteria are used, and it can even change within one country during a pandemic wave. Diagnostics can refer to epidemiological story (foreign trips, contacts with the diseased, living in pandemic hot zones in institutional establishments), clinical picture (deterioration of health on typi-

cal symptoms and blood tests), clinical diagnosis by computer tomography (detection of lung inflammation) or serological tests (detection of antibodies on the late stage of disease or recovery), clinical diagnosis by polymerase chain reaction testing (positive test for COVID-19). For example, in China, the method of diagnosis of the disease has changed 7 times, and by February 20 the number of diseased would be either 55,500 or 232,000 people depending on what method of diagnosis would be applied since the beginning of the pandemic (Tsang et al. 2020).

2. The number and distribution mode of tests also vary. Tests are carried out either for those willing or for at-risk groups (those arriving from countries with pandemic hot zones, people of old age, medical staff, relatives and network of the diseased, in large cities, in coronavirus outbreak hot zones, people with symptoms). Obviously, both number of cases depends on the methodology of testing (the more tests, the more diseased; the more tests for all those willing, the lower the incidence rate), and number of deaths do (the more specific the tested group is in terms of mortality risk, the more likely is a selective effect in mortality rate, e.g. if only elderly people are tested, the mortality rate is higher). The situation within the epidemiological wave is changing very quickly. The number of conducted tests is growing along with the list of test-systems producers (state and commercial companies). For example, the number of tests in Russia during one day of April 29, 2020 was 182,600 (7,099 new cases; cumulative number of registered cases by this date is 106,498). To compare: during one day of March 31, 2020, there were 35,900 tests conducted (440 new cases; cumulative number of cases by this date was 2,777) (Stopcoronavirus.RF 2020).
3. Asymptomatic diseases and inaccurate tests. Some infected persons have no symptoms, therefore, they are very likely not to fall into the statistics of coronavirus, especially when testing groups at risk. In Russia, the share of infected people without symptoms increased from 12–15% up to 40% between the beginning and the middle of April (RBC 2020). Inaccuracy of statistics comes not only from underestimation of asymptomatic cases but also from unreliable tests. The accuracy of tests in Russia, for example, was estimated 70–80% by the Ministry of Health (Medvestnik 2020) and 95% by the Federal Service for Surveillance in Healthcare (Roszdravnadzor 2020).
4. The ways in which the cause of death is diagnosed vary. WHO in its guidelines for certification and classification of COVID-19 as a cause of death gives a broad definition including not only confirmed but also suspected cases (WHO 2020). Variants for coding causes of death depending on the situation – U07.1 COVID-19 and U07.2 COVID-19 – can later provide the ground for additional analysis. But real-time estimates of mortality from this cause of death are complicated by different countries' approach to diagnosing deaths "from" coronavirus and "with complications" of coronavirus (even different regions of a country can apply different coding of causes of death). In addition, to diagnose deaths from COVID-19, it is also important to do postmortem testing (which is more often not done). At the very initial stages of the pandemic, there was no such code yet. Taking into account the above points 1 to 4, it is more reasonable to estimate the excess mortality from all causes of death during the pandemic (the analysis of deaths from "similar" diseases will not help in this case; for example, in Russia number of deaths registered with "pneumonia" as a cause decreased in March 2020 by 15% compared with March 2019 (Rosstat 2020)).
5. Outbreak hot zone spreading mode. Coronavirus spreads unevenly across the country. Virus outbreak hot zones are: transport hubs, urban agglomerations, places with

congested population (hospitals, care homes for elderly, rotational worker villages, prisons). This is not a final list, and rural areas with relatively few inhabitants and low population density in Europe have also been affected. If we correlate the number of deaths with the nation's population, we will underestimate the coronavirus mortality statistics. The way out is to assess mortality at the municipality level. But such data is not always available in all countries, and it is much more difficult to obtain them quickly. For example, population of the city of Moscow is about 9% of the population of Russia, while the share of Moscow in the registered coronavirus cases is 70 to 50% in the period of active stage of epidemic (Stopcoronavirus.RF 2020). The curves in Fig. 1 show difference in timing and intensity of the disease spreading, but they can partly conceal different approaches to diagnostics of morbidity and mortality in different regions.

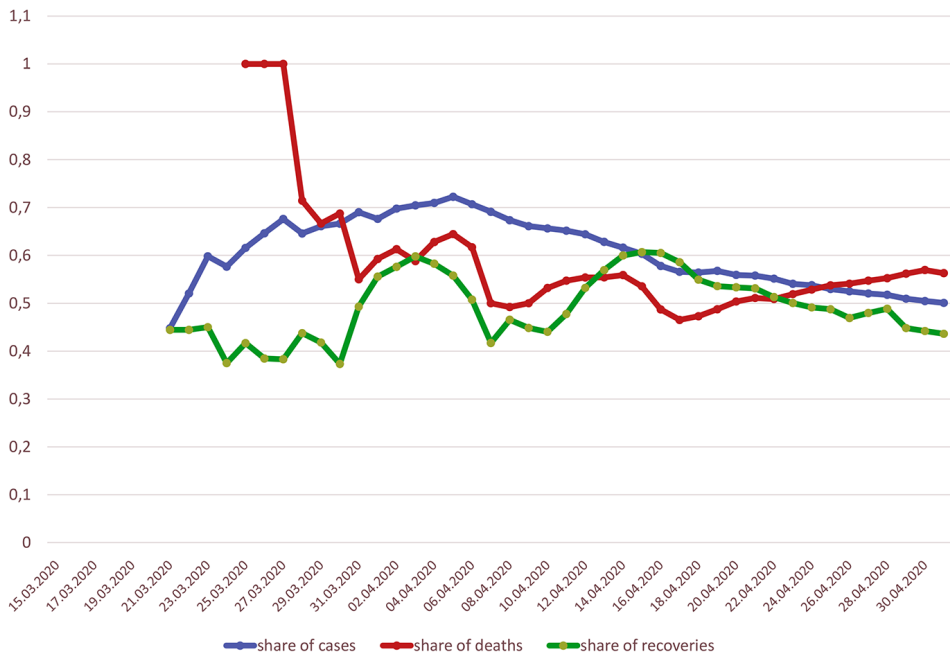


Figure 1. The share of the Moscow cases of infection, death and recovery, since 100 registered cases were surpassed in Moscow, %. **Source:** compiled by the author on the basis of data from: (Stopcoronavirus.RF 2020), 30.04.2020.

6. A short period of pandemic wave. There is no point in “smearing” coronavirus deaths for the entire year as the pandemic wave takes about 3-4 months. In order not to underestimate the rate of overmortality, it is reasonable to take into account weekly or monthly mortality. It is important to note that the weekly data will understate the number of deaths due to delayed processing of operational information, the subsequent correction will be needed to finalize the analysis.

From all of the above mentioned, it follows that the most accurate estimate of the coronavirus overmortality can be given when analyzing weekly or monthly data from all causes of death for various sex-age groups compared to the level of such mortality in previous years. This analysis (without the gender section) is represented, for example, by the EuroMOMO

project for 24 European territories (countries, regions, cities) reporting data from 2016 (EuroMOMO 2020). Data for detailed analysis by the academia is open in some countries (the United Kingdom, Italy, etc.). The Lancet Gender and COVID-19 working group (The Lancet Gender...2020) and the Global Health Project (GlobalHealth5050 2020) publicize disaggregated COVID-related data by sex. As usual, they are much less than aggregated data.

Possible factors of increased morbidity and mortality

Analysis of the factors of increased mortality (and morbidity) will be carried out later when the pandemic ends; by that time, we will have information on the disparities of different social groups and territories before the pandemic (see, for example (Thebault 2020) on a threefold increase in the morbidity rate and a six-fold increase in the death rate from COVID-19 of the non white population compared to the white population of the United States). Here we shall only briefly give our assumptions on possible factors of increased (reduced) morbidity and mortality from coronavirus based on observations of pandemic development in Russia and in some European countries.

1. Specifics of data collection and diagnosis of causes of death (see the section above).
2. Demographic factors:
 - at the micro level
 - sex,
 - age,
 - the composition of the household;
 - at the municipality level
 - sex and age structure of the population (Kashnitsky and Aburto 2020),
 - household structure (especially the proportion of one-person households; in Sweden, for example, about 60% of households are one-person households, on average in Europe there are just over 30% such households; coveted loneliness can be a factor of a relatively low mortality),
 - high population density (though the strong influence of this factor is doubtful (Barr and Tassier 2020),
 - the share of the institutional population and its safety (residents in hospitals, care homes for elderly, military barracks, dormitories, rotational worker villages);
3. Geo-spatial factors (at the municipality level):
 - presence of transport hubs, the place of the settlement in internal and external tourism,
 - availability and popularity of public transport,
 - prevalence of places of public gathering (markets, large shopping and cultural and entertainment centers, religious institutions, etc.),
 - number of stories in houses and type of construction of large cities, street layout,
 - air pollution (Conticini et al. 2020),
 - peculiarities of climate;
4. Socio-economic factors (at the micro level):
 - income of the individual and household prior to and during the pandemic,
 - savings,
 - availability of durable goods, movable and immovable property (personal car, second home or summer house, “excess” refrigerators or freezers – for quick and lasting isolation and the ability to make stocks),

- access to remote services (availability of digital cards, use of online banking, access to courier services, etc.),
 - characteristics of the employment of the individual and the household members (possibility of self-isolation),
 - education of the individual and the household members (as an indicator of the level of self-control and hygiene),
 - health of the individual and the household members prior to the pandemic;
5. 5. Epidemiological, regulatory and socio-economic factors (at the macro and municipality level):
- per capita income,
 - health care expenditures,
 - health care system indicators (including number of beds, doctors, equipment per capita),
 - type of social protection,
 - type of epidemiological measures taken at different stages of the pandemic;
6. 6. Socio-cultural factors:
- frequency of social contacts,
 - experience of previous epidemics (The Soviet Union's success in combating epidemics allowed us to equal mortality rates with developed countries and quickly overcome the initial stages of the epidemiological transition by the 1960s by reducing deaths from infectious diseases. The generational memory of the chlorination of homes and public places and education in the spirit of strict hygiene could be a positive experience in dealing with pandemics.),
 - hygienic customs in everyday culture (custom to remove street clothes and/or shoes when entering home, food processing rules, hygiene rules),
 - self-preserving behaviour (consumption of alcohol and tobacco, the habit of monitoring one's health, visit the doctor when necessary),
 - population response to government recommendations in case of weak, medium and tight control.

Demographic consequences and demographic myths of the pandemic

Today you can often hear reflections that the pandemic will dramatically change our lives and have an impact on all facets of our lives, and demographic consequences will come soon. It seems to me that we are exaggerating the changes to come. I propose to discuss what we will really face and what appears to be a myth or an exaggeration.

There is a number of demographic myths and exaggerations such as: "The pandemic will reduce the population of the country", "The pandemic will change the structure of the population of the country (it will slow down population ageing, create a shortage of suitors in the marriage market)", "The pandemic will increase the attractiveness of the countryside lifestyle and enhance the process of de-urbanization", "The pandemic will raise fertility", "The pandemic will increase divorces".

Every death is an irreparable tragedy. The value of human life in the 21st century is high. During this pandemic, this is particularly evident in developed countries, whose governments, at the cost of losing political points in the future, have introduced different kinds of

isolation that are impossible without economic losses. The choice for saving as much lives as possible during pandemics and mitigating the peak of the epidemic through time was made with a clear understanding that it would have to be paid for by falling real incomes of the population, destruction of entire sectors of the economy, hardships of small and medium-sized businesses. But the scale of human losses in the context of the country's population (and even regions) is relatively small. And I really hope that this remains true by the end of 2020.

Despite the higher risk of mortality in men and the elderly (Yang Y et al. 2020) this sad fact will hardly seriously affect the nation-wide sex and age structure.

The pandemic will end quickly enough in terms of centuries of changes associated with urbanization and population concentration, and will not become a major factor of de-urbanization and de-concentration of the population. The attractiveness of urban lifestyle is not just about entertainment opportunities, cultural leisure activities and reduced house-keeping time. The first wave of urbanization was caused by industrialization and a dramatic decline in the share of agriculture in the economy. In the era of the service economy, contact types of services have long prevailed, which only increased the concentration of population in agglomerations and regional centers. Large networks and aggregators focus on the size of the locality before deciding to place themselves in it. Non-contact (remote) services are just beginning to enter the consumer markets. The lack of adequate jobs for all family members willing to work or the excess time for transportation will dampen the enthusiasm of relocating to the suburbs. Access to high-quality and urgent health care, as well as good education are also privileges of cities.

It seems, the fertility will not rise after the pandemic. We do not have the experience in studying such an effect. Rising fertility after a century-old pandemic and postwar baby booms happened in an era before the demographic transition. The current AIDS pandemic has a very low impact on fertility, both in general and among HIV-negative women (Forston 2009), but the incidence in this case lasts a long time, infection occurs in other ways, and this creates other behavioural strategies. There is evidence of an increase in fertility after brief events, like the earthquake in India (Nandi et al. 2018) or relatively weak storms in the United States (Evans et al. 2010). A generalization of most of the events in the last century enables concluding a decrease in fertility in the case of overmortality 7-10 months after the tragic events, then rapid recovery of the fertility to its previous level within a short period of time (Stone 2020).

Rather, we will see a decline in number of births and not so much because of deaths and abortions during the pandemic, but because of falling incomes due to the economic recession. Such correlations are more stable (Matysiak et al. 2018). If economic losses in incomes of the population and business are sensitive, then this could affect the delay of births until the situation recovers. It is necessary to see a longer horizon of demographic changes and the entire range of birth factors. In Russia, we are witnessing the declining fertility trend since 2015. In 2014, there was a local maximum for the post-Soviet period (over 1.9 million births), while in 2019 there was about 1.5 million births. According to the medium forecast of Rosstat made in December 2019, by 2025 the number of births will fall to 1.2 million. In this context, a short-term pandemic can hardly boost fertility and break up the existing trend. A pandemic can generate the effect of delayed births. Not on its own, but as a result of the recession that accompanies the pandemic. That is much talked about today, calling the combination of a pandemic and economic recession an "ultimate storm".

The same applies to the impact of the pandemic on divorces and marriages. In the short term, we see decrease in numbers of marriages and divorces (individuals delay these events as registration offices are out of work). For example, in Moscow the number of marriages and divorces decreased by 26% in March 2020 compared to March 2019 (Rosstat 2020). Dynamics of marriages and divorces within several years is to be revisited (as they were underestimated due to the shift to a new registration system in 2018-2019), however, it is obvious that the delay in these acts is taking place and most of them will happen after the pandemic ends.

In the long term, matrimonial behaviour is affected by other factors. Almost all countries have recorded an increase in domestic violence during the pandemic. It is psychologically difficult to go through a long period of self-isolation in families. However, marital conflicts and divorces may reversely influence the design of the spouse's residence (Zhylyevskyy 2012). The economic recession would rather strengthen marriage so that it would be easier to survive together in difficult times.

Another effect on fertility and nuptiality in the long term can result from accelerated digitalization of society, which in turn positively affects the fertility of women with higher education (Billari et al. 2019) through access to high-speed Internet and remote employment opportunities. Evidence from Russia also confirms a significant positive effect of female access to broadband Internet on the fertility and nuptiality (Kalabikhina, Abduselimova, Klimenko, ready for publication).

The impact of the pandemic on mortality and morbidity is not at all a myth or a demographic exaggeration. The pandemic will increase the overall mortality, it will especially clearly be seen at the municipality level, particularly in older ages (EuroMOMO 2020). Years of life lost are estimated as over 10 years, even for people with underlying long-term conditions (Hanlon et al. 2020)

In the short term, there will be divergent effects on death of different causes in framework of the growth of overall mortality. On the one hand, there will be growing number of deaths from cardiovascular diseases, oncology and other causes, where the prevention of deaths closely depends on timely and/or continuous care for patients. This will be caused by the fact of all the forces of health care systems being summoned to tackle the pandemic. Given that health care systems have been constructed in accordance with a completely different type of structure of causes of death (hurricane-type infectious diseases had a very modest weight in this structure), this summon is all-out. Maternal and infant mortality may increase in developing countries (as observed during the Ebola outbreak). Alcohol-related mortality may be rising. In Russia in the last decade of March there was an increase in the sale of alcohol products, people bought alcohol together with food products in preparation for self-isolation (by 10-30% in different regions). But in the first decade of April there was a 40% drop in alcohol sales (Izvestia 2020). Meanwhile, according to operational data, number of deaths from alcoholic intoxication in Moscow decreased by 25% during January-March 2020 compared to the same period in 2019; number of deaths from poisoning by and exposure to alcoholic liquids with undetermined intent – by 50% (Rosstat 2020) (monthly data on causes of death for regions are not yet publicly available).

On the other hand, there will be a decrease in deaths due to road accidents (due to a sharp decrease in the use of personal and public transport), murders (self-isolation and reduced contacts), non-alcohol intoxication (increased emphasis on hygiene). In Russia, in March 2020, according to traffic police, the number of serious accidents and deaths from them fell by 8% compared to March 2019 (the self-isolation regime was introduced after March 16,

2020) (RT 2020). In Moscow, according to the Department of Transport, during the period of self-isolation the number of cars decreased by 50% compared to the same days of previous year (Official website of the Mayor of Moscow 2020). Number of deaths from traffic accidents during January-March 2020, compared to the same period 2019, in Moscow decreased by 36%, from murders by 38% (Rosstat 2020).

Over the long term, the effects of the pandemic on mortality will depend on whether a vaccine for this type of virus is created. If this happens, mortality will fall below pre-pandemic level. This compensatory effect is often observed (Zanobetti et al. 2000). People at risk are more likely to die during the pandemic period, there will be a calendar shift in deaths (mortality displacement effect). Deaths that would take place next year will happen this year. A similar compensatory effect, only in reverse, was observed in the 1980-1990s in Russia and a number of CIS countries – the effect of delayed alcohol-related deaths in the anti-alcohol campaign (Andreev 2002).

The pandemic will also increase the morbidity rate, especially from chronic diseases, in the future.

In the coming years, the pandemic will slow down the increasing intensity of mobility of all kinds, from resettlement flows from developing countries and countries with military conflicts to developed countries to tourist flows (and all type of “circulations” according to W. Zelinsky (Zelinsky 1971)).

Social impact of the pandemic: gender lens

The pandemic will have a different effect on the young and elderly, men and women, people who had different levels of health and well-being before the pandemic. It can affect social contacts, hierarchy of values, socio-cultural relations. Our special interest in the frames of this article is the impact of the pandemic on the perspectives of gender equality.

In Russia (as in many countries) there is a complex of gender problems that have been remarkably stable for decades. Some of these problems reflect the worse position of women, namely vertical and horizontal occupational segregation, a greater participation in unpaid labour on housekeeping and care, salary gap, domestic violence, low participation in politics, lagging in business ownership and management. Some of these problems reflect the worse positions of men, namely the gap in life expectancy at birth, work in worse conditions, lag in higher education. Women live longer, but their health is worse (Rimashevskaya 2003; Kalabikhina 2012).

All these underlying circumstances affect the differences in the position of women and men during the pandemic and economic recession. International organizations predict different impact of the pandemic and recession on women and men (UN Secretary-General 2020) based on evidence of gender inequality: globally, 60% of women work in the informal economy, earn less wages and save less money (UN Women 2020).

What has the pandemic added to gender inequality? As it seems at first glance, we have taken a few steps back in distribution of the care economy between partners. Following the quarantine closure of schools and preschool institutions and the increased need for care for older relatives (UNFPA 2020) for many middle-generation women the burden has increased due to the increase in routine work in the household. The “working” day of most women has increased significantly.

In addition, the risk of domestic violence in apartments and houses has increased under the conditions of isolation, as evidenced by both new data and earlier studies showing an increase in domestic violence against women and children during periods of economic instability and rising poverty (Peterman et al. 2020).

At the same time, women are at the forefront of the fight against coronavirus because of their high prevalence in the health care and social support sector (on average worldwide, women account for 70% of health care working places, over 80% in social services and care for those in need (World Bank 2020)). On the one hand, women in these areas will not lose their jobs in the acute phase of the crisis. On the other hand, the growth of family and professional burden can threaten their health and deterioration of human capital.

International organizations call for special attention to be paid by Governments, employers and the population to support women and their needs at this time, especially women in the health care sector and women with family responsibilities (ILO 2020). However, no program can fully compensate for such costs of physical and mental energy. In many ways, the world is experiencing a pandemic on women's shoulders.

Not only women but also economically vulnerable social groups may suffer more from the pandemic and the economic crisis, these are the poor, vulnerable ethnic groups, people without medical insurance. In countries with sensitive levels of inequality, such groups enter the crisis with less health and with higher risks of loss of income and employment (Nassif-Pires et al. 2020).

Vulnerability in a crisis is usually linked to the borderline state before: people and families are not recognized as poor, but they are not far from this state. Such people do not receive social transfers because they are not so poor, but their income has not allowed to create a safety cushion. Women are more likely to fall into such borderline groups – their chance to face rapid deterioration of their situation without having received any crisis payments, is great. For example, in Russia, women have a more modest safety cushion in the form of savings and investment insurance products, which is a consequence of their lag in income. Small incomes do not encourage them to use financial instruments and diversification of investments, which puts them in a less advantageous position. But there is also an optimistic peculiarity: women more often buy life insurance policies (60% of the market), although the average insurance coverage of men is twice as high – 344,500 against 117,600 rubles respectively (Banki.ru 2019). This means that the intention of women to insure life is quite high, but their income does not allow purchasing the best products.

Vulnerability during a crisis also refers to employment if the crisis has structural features. Combined with horizontal segregation, the type of crisis can influence the growth of gender inequality. For example, the 2008-2009 financial crisis affected male employment more seriously than female employment in the United States (Alon et al. 2020). The current crisis of demand in female-dominated services can have a greater impact on women. This is especially true for so-called contact services compared to remote services. The examples of contact services in this context are: almost all medical services, care-giving for the sick and children, cleaning and other assistance in the household and office, the beauty and body care industries, the hospitality sector. The examples of remote services are: information services, financial services, educational services, partially medical services (telemedicine), scientific and analytical work, software development.

In Russia, two thirds of the employees work in the service sector; among men they make up less than half, among women – over 80%. According to the Rosstat 2019 data, I estimated the share of employed women and men in (potentially) remote services and health care.

About 44% of women and about 19% of men work in such promising remote industries. To be fair, it should be noted that over 13% of women (and less than 1% of men) are engaged in contact services, which will not be in demand now. As a result, according to horizontal segregation in services, Russian women's employment is likely to be affected less by the current crisis. Employment patterns in the industrial and construction sectors (more men) depend on government programmes. The agricultural sector (equal presence of women and men) will be less affected by the crisis, especially under the import substitution and food security programmes.

Prior to the crisis in Russia, women were more actively involved in remote work, and this trend was intensifying. According to assessments of the respondents themselves (estimates made by us on the basis of the RLMS-HSE data), in 2014 4.6% of men and 10.3% of women worked remotely, in 2018 – 4.7 and 15.1% respectively. It wasn't just personal choice or employer permission. We estimate that the very structure of jobs was in favour of women. Men predominantly worked in areas and positions less suited for remote work.

Although in terms of prospects for digitalization of jobs (opportunities for remote employment, automation, cloud applications, etc.) the structure of professions in Russia was not beneficial for women. The share of intellectual and working professions that have become obsolete in terms of digitalization was 53–56% among “female” professions and 22–27% among “male” professions (Kalabikhina 2019). It is important not to confuse the perspectives of working place digitalization in the broad sense with one of the components of digitalization – the remote working place format. I would refrain from overestimating the speed of digitalization and feminization of such working places.

According to data on gender distribution of employed persons in the United States labour market, men benefit from opportunities of remote employment now while taking into consideration the accelerated growth in remote employment after the pandemic women will benefit more (Alon et al. 2020). This approach to assessment of workplaces is comparable to our methodology, the result is also similar: women's areas of work have high potential in terms of remote format, but this format is spreading very slowly.

Feminized industries are often characterized by low wages, so making investment in the technological development of these sectors is unprofitable.

In case of broader understanding of vulnerability in the labour market (including self-employed individuals, precarious employees, workers in the most affected industries), the following social groups can be regarded as most vulnerable in terms of loss of work and income in the current crisis in Russia: young people; people living in regional centers; those who do not receive social benefits; less educated; families with children. Working women, on average, do not have higher risks than men (Kartseva and Kuznetsova 2020).

The impact of economic crises on gender inequality is ambiguous. On the one hand, we witnessed an increase in gender equality during the crises of the 20th century, when women were used as a reserve of the labour force and were “invited” to occupy working places in the labour market. As an example, we can recall the feminine emancipation of the early 20th century in the Soviet Union. Lack of men due to losses in wars and revolutions when the demand for labour for industrialization increased, was the main driver of such emancipation. The Second World War placed women to factories and plants in Europe in the post-war years (Acemoglu et al. 2004). The use of female labour in the developing economies of South-East Asia in the last decades of the 20th century has been a key to the rapid economic growth of these countries. On the other hand, women can act as a reserve for the reduction

of the labour force in crisis and join the ranks of the unemployed (Khotkina 1998). Or, as in the case of the reaction of the Russian labour market to crises, women are to agree to a reduction in wages in order to keep a job in the budgetary sectors of the economy even if they lose more from the crisis in terms of income. At present, there are no clear understanding of the impact of the current crisis on gender equality. For example, in the U.S. in March 2020, the unemployment rate was slightly dominated by women (Alon et al. 2020), while in Russia by men (operational data of Rosstat). These two countries cannot be compared, but one thing is clear: the impact of the pandemic and the recession on gender equality will be multidimensional. The additional risk of job loss and career retardation for women is now associated with social distancing and closure of schools and kindergartens. Most of the child care, as usual, falls on the shoulders of women (Kalabikhina and Shaikenova 2018). If the return from experience in the labour market for working mothers is high (Alon et al. 2020), and the motherhood penalty depends on the length of parental leave (Biryukova and Makarentseva 2017), possible forced interruptions or reduced labour intensity can result in loss of income, career or even job.

We are to add that the institute of grandmothers, traditional for Russia, also terminated because of pandemic since the elderly were ordered to stay at home and avoid contact with their grandchildren.

It is difficult to draw the final conclusion about the gender effects of the pandemic on the labour market, as there are many divergent trends. For example, business losses in Russia (inevitable in this crisis) will affect men to a greater extent, as business still has a male face. The shadow sector will worsen the situation of women. It employs 13 million out of 72.3 million economically active population (RIA Novosti 2020), it consists mainly of the service sector, therefore, it has a high proportion of women. These people are out of the state support.

Women use digital cards for online banking payments less often (more often they simply withdraw cash from salary accounts), especially older women, those who work in the informal sector, live in remote settlements, have low incomes (Banks today 2020). So, women have less access to remote life support tools in the current crisis.

We discussed gender differences in the labour market, entrepreneurship, the care giving economy, savings, access to digital payments in the context of the current crisis. In all cases (except in the labour market, where the outcome is not yet clear) women are in a relatively worse position.

However, the pandemic turned to be gender asymmetrical also in terms of risk of loss of health, morbidity and mortality. We mentioned above that the demographic losses from the pandemic are not equal by sex, and the mortality is higher for men. The Lancet Gender and COVID-19 working group and The Global Health Project (GlobalHealth5050 2020) provide sex-disaggregated data related to COVID-19.

According to the disaggregated data available to April 23, 2020, the share of men in confirmed COVID-19 cases is unstable and their proportion in deaths in the confirmed cases is higher in most represented countries (Fig. 2)

COVID-related male deaths' number is 1.8 times higher on average than female ones (weighted average by number of deaths), and the spread of the gender gap in number of death is small (Fig. 3).

With the increase in the number of deaths among confirmed cases, the ratio of male to female deaths in confirmed cases increases slightly (Fig. 4).

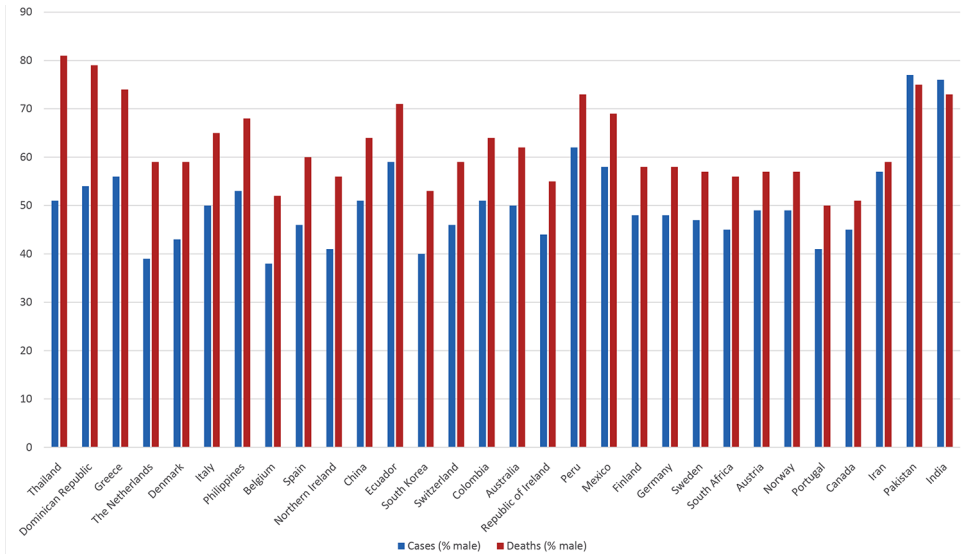


Fig. 2. Share of men in reported cases of infection and deaths from COVID-19, %. **Source:** compiled by the author on the basis of data from: (GlobalHealth5050 2020), 23.04.2020.

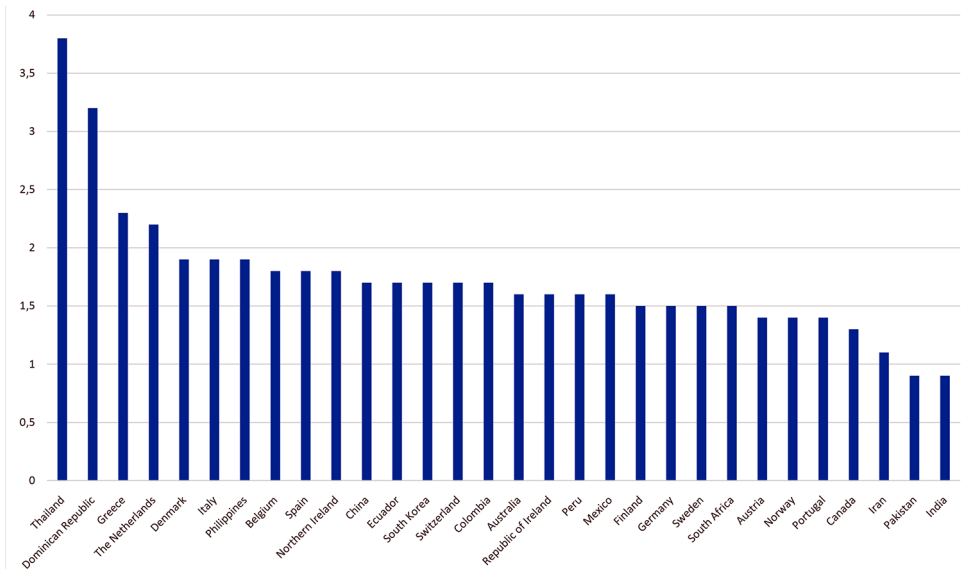


Fig. 3. Gender ratio of deaths in confirmed cases of COVID-19 (male:female ratio). **Source:** compiled by the author on the basis of data from: (GlobalHealth5050 2020), 23.04.2020.

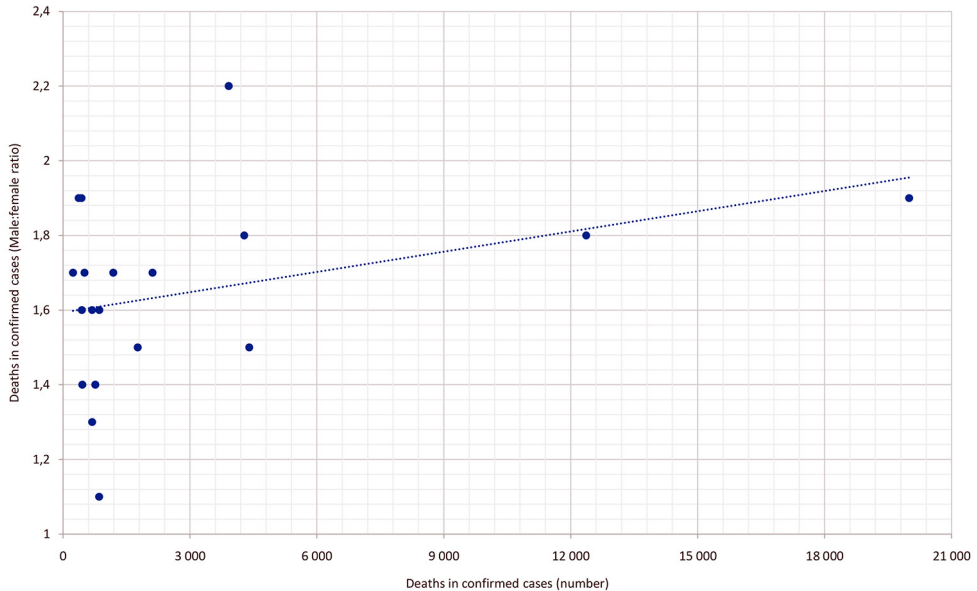


Fig. 4. Gender ratio of deaths in confirmed cases (male:female ratio) to deaths in confirmed cases (number) from COVID-19. **Source:** compiled by the author on the basis of data from: (Global-Health5050 2020), 23.04.2020.

Discussion on the reasons for this trend suggests a range of biological (Chen et al. 2020; The Lancet Gender... 2020) and social factors. The following factors can be attributed to biological:

- the genetic factor (presence of the second X-chromosome in women),
- the hormonal factor (estrogen in women of childbearing age),
- the immune answer (congenital and adaptive immunity in women is stronger (Klein and Flanagan 2016)).
- The inherent gender differences are the following:
 - higher addiction to smoking among men (Liu 2017),
 - a more developed habit of daily personal hygiene among women (Istituto Superiore di Sanità 2020),
 - ignoring the doctor in case of illness and postponing a visit to the doctor in men (NPR 2020).

Another gender effect of coronavirus is the higher proportion of women among infected health care workers. Apparently, vertical hierarchy in medicine affects the increased risk of infection among women (Fig. 5).

The possible failures of women in access to resources for reproductive health support and reproductive plans under the pandemic are also to be mentioned: childbirth in maternity hospital, abortions, consultations, medicines and contraceptives devices. They turn problematic when almost all medical resources are summoned to combat the pandemic. The objective situation with lack of medical resources may be complemented by political constraints (Sakevich 2020).

I would prefer to conclude the discussion on gender inequality in the face of the coronavirus optimistically. I think, this difficult situation, opens up new opportunities for increasing gender equality and intergenerational solidarity.

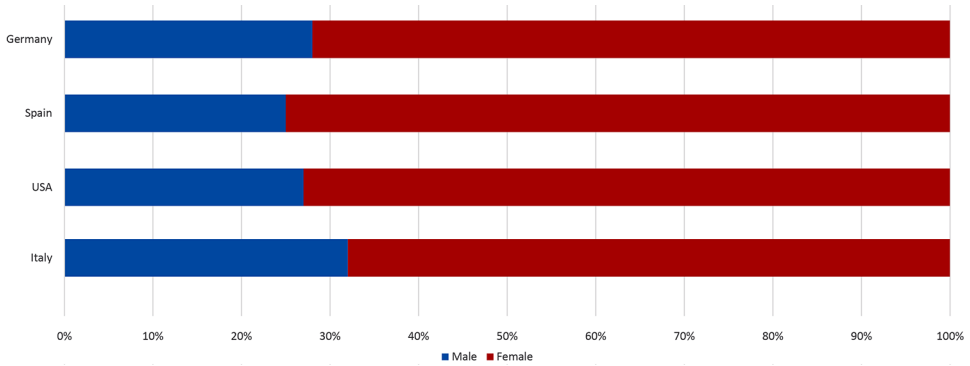


Fig. 5. Gender ratio of confirmed COVID-19 cases among health care workers, (male:female ratio), 22.04.2020. **Source:** compiled by the author on the basis of data from: (GlobalHealth5050 2020).

Firstly, the paid and unpaid care-giving economy rests primarily on women’s shoulders. This feminized service sector has a chance to demonstrate wage growth after the pandemic (especially if a mechanism for lobbying the interests of workers in this sector is found).

Secondly, there is a chance to put an end to the stereotype that exclusively women must and can take care of children and the elderly. Isolation regime has allowed many men to try on the role of a caring father. Women in education and health care (possibly in other areas) have not stopped their work. With the closure of schools and kindergartens, male participation became inevitable. We are now surprised at the high level of participation of Swedish men in childcare. But very recently this country started with a modest proportion of men taking parental leave. Involvement and getting used to a new role change the attitude to caring for children. Partners will become better aware of each other – this is another bonus of the pandemic.

Thirdly, for many people homelife and work combined on the same area turned into blurred time and space boundaries between these two types of activity. This will force men and women to rethink new opportunities for positioning family and professional activities in space and time. A request for remote employment, for a flexible design of social roles in each household will be shaped after the pandemic. Employers will also tend to economize on the workspace. Though the return to “normal” work after the pandemic is inevitable, fatigue from emergency forced remote work 24/7 will make itself felt. Remote employment is associated with barriers to the development of the worker as it often means an additional burden in performing professional functions, difficulty in building relationships in the team, in the division of home space between the members of the household, in the independent organization of timing, etc. Yes, it is a promising resource for the family-work balancing, but by no means the best form of employment. Now there is a lack of remote jobs or combined-type jobs, so I am still in favour of expanding remote capabilities, especially in the context of combined forms of employment.

Fourthly, intergenerational relations can improve with each step towards sharing the care giving among partners. Grandmothers will stop taking care for grandchildren as a burden, communication with grandchildren and children will be based not on duty, but on joy and mutual desire.

Fifthly, generations will better understand each other. During isolation young generations tried themselves in cooking more at home and older generations have got an experience in ordering meals and goods delivery to their home and in using various gadgets for communication.

So, the possible gender equality implications of the pandemic are:

- deterioration of the status of women due to the expansion of the care-giving economy and increased responsibility (children are at home, the elderly demand more attention, grandmothers are out of reach), a smaller safety cushion in the form of savings and investment, poor access to digital tools, weak pre-crisis digitalization of female jobs, increased risk of domestic violence, inclusion in the frontline of the pandemic, the relatively high incidence of female healthcare personnel due to the vertical segregation of the healthcare labour market;
- deterioration of the situation of men due to higher risks of loss of employment and business, and a structure of male working places less prepared for a remote structure;
- improvement of the position of men due to a higher digital potential of their working places, the growing proximity of human relations with children and relatives, increasing degrees of freedom to choose one's functions at different stages of the life cycle;
- improvement of the status of women in terms of stability and demand in the labour market, prospects for wage growth in the feminized health care sector, growing demand for remote employment in feminized industries, higher preparedness of working places for remote employment, improving intergenerational relations and solidarity, and convergence of everyday consumption and housekeeping styles of different generations, an open window of opportunities for new formats of the family-work balance, the fragile possibility of shifting socio-cultural stereotypes on the division of labour in the care-giving economy.

Conclusion

The pandemic will come to an end. For a long time, we will be analyzing its results, the geo-spatial, demographic, socio-economic, socio-cultural and political factors of unequal effects of the pandemic on different population groups. We will test our hypotheses on how the pandemic affects mortality and morbidity in the short and long term; whether it will reduce fertility and intensify migration flows.

It is important to understand that the pandemic will not radically change the trajectory of human development, nor will it stop modernization. It will end pretty quickly. The accompanying economic recession will last longer, but will also end, as the economy is cyclical. The pandemic can only accelerate or slow down existing trends. There may be oscillation of the "public pendulum" immediately after the pandemic (for example, rejection of remote employment, increased consumption of catering, luxury goods, performances, etc.). But even short-term pre-crisis trends will continue their rapid development. In Russia, for example, fertility was declining and poverty was growing before the pandemic and recession. This situation will continue after we leave our homes where we were due to quarantine. General modernization trends can be hardly eroded. Gender equality is growing around the world, slower in some places, faster in others. And it will keep growing, despite periodic renaissance of patriarchy moods. It is an interesting question whether the pandemic and the associated economic recession will accelerate or slowdown the trend to gender equality in the short term. I think that it will accelerate, especially if we consolidate the lessons taught to us by the coronavirus: society has become more appreciative of human life, and this is the right choice between economy and life; society began to value some feminized professions more and this will provide a chance to improve health care systems and women's status at the same

time; men have tried themselves in the care-giving economy and it brought more freedom to domestic sphere; digitalization and technological progress can prove useful against epidemiologic challenges and downturn in the economy.

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Information about the author

- Irina Evgenyevna Kalabikhina – Doctor in Economics, Professor, Head of the Department of Population, Faculty of Economics, Lomonosov Moscow State University. E-mail: ikalabikhina@yandex.ru