

Coronavirus Disease-2019 or the End of a Happy Globalization

Asim Kurjak¹, Milan Stanojevic², Miro Jakovljevic³, Ghalia Gaber⁴, Selma Porovic⁵, Edin Medjedovic⁶, Vjeko Vacek⁷

ABSTRACT

Recent catastrophic consequences of coronavirus pandemic stimulate some deeper analysis of present level of globalization, particularly connected with public health problems. One definition of globalization may be that it is the integration of capital, technology, and information across national borders in a way that is creating a single global market and, to some degree, a global village. Besides economic, it includes many different processes such as development of communications systems, the increase in human mobility, the integration of trade and investment across boundaries, the spread of democracy and human rights, the increasing role of nongovernmental organizations in international politics, the growing concern about global epidemics, and ecological matters such as climate change that are happening at the same time and in many cases reinforcing one another. Up till now, in June 2020, there have been over 20,000 published scientific papers on Coronavirus Disease-2019 (COVID-19), which is an unprecedented level of interest in any topic in the entire history of science. Besides the described effect of remdesivir on reducing the length of the illness and the announced research on the effect of dexamethasone on reducing the mortality rate, science has not offered any other news on medication effectiveness so far. After the vaccine's effectiveness in developing antibodies and protecting from COVID-19 is proven, then its safety will need to be proven. Vaccines have to be harmless and their only effect on the organism should be the developing of permanent immunity to the novel coronavirus. However, never have we in history, as humanity, had planned to simultaneously vaccinate 4 or 5 billion people. Most of us welcomed positive globalization process, but with the recent pandemic of corona disease, we are introducing negative part of globalization with many unpredictable developments. Indeed, globalization is both inevitable and usually desirable and contains advantageous and disadvantageous issues. It is a source of both hope and of apprehension and is an accelerating process in flow of information, technology, goods and services, and production means. Globalization has a complex influence on perinatal health. The bonds that link perinatologists together transcend geographic, political, religious, and lingual differences, resulting in a globalization that optimizes perinatal care.

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In our long interest for good and bad news on process of globalization, we already published several papers.^{1,2}

Recent catastrophic consequences of the coronavirus pandemic stimulate some deeper analysis of the present level of globalization, particularly connected with public health problems.

Process of globalization is as old as the first migrations out of Africa, when our ancestors began to spread out and colonize the Earth, adapting to virtually all climates and becoming a new kind of life form—the first globalized species.

Among many of definitions of globalization, we prefer one saying that it is the integration of capital, technology, and information across national borders in a way that is creating a single global market and, to some degree, a global village.

Globalization is not simply economic. It includes many different processes, such as development of communications systems, the increase in human mobility, the integration of trade and investment across boundaries, the spread of democracy and human rights, the increasing role of nongovernmental organizations in international politics, the growing concern about global epidemics, and ecological matters such as climate change—that are happening at the same time and in many cases reinforcing one another.

Indeed, there should be alteration in our understanding on the challenge of globalization and in particular the change to research.

In such an environment, globalization, the enormous acceleration of social, economic, and political transformation process, demands a different kind of research. While in the past the natural sciences including biology, primarily had a descriptive character, today they are becoming more and more synthetic and complex. For example, because of great increase in knowledge

¹Department of Obstetrics and Gynecology, Medical School University of Zagreb, Croatia; University Sarajevo School of Science and Technology, Bosnia and Herzegovina

²Department of Obstetrics and Gynecology, Medical School University of Zagreb, University Hospital Sveti Duh, Zagreb, Croatia

³Department of Psychiatry, Medical School University of Zagreb, University Hospital Center Zagreb, Croatia

⁴Department of Obstetrics and Gynecology, American European Medical Center, Abu Dhabi, UAE

⁵Department of Preventive and Pediatric Dentistry, Public Health Center of Sarajevo Canton, Sarajevo, Bosnia and Herzegovina

⁶Clinic of Gynecology and Obstetrics, Clinical Center University of Sarajevo, Sarajevo, Bosnia and Herzegovina; Department of Gynecology, School of Medicine, Sarajevo School of Science and Technology, Sarajevo, Bosnia and Herzegovina

⁷Ian Donald School of Ultrasound in Medicine, Zagreb, Croatia

Corresponding Author: Asim Kurjak, Department of Obstetrics and Gynecology, Medical School University of Zagreb, Croatia; University Sarajevo School of Science and Technology, Bosnia and Herzegovina, e-mail: asim.kurjak@public.carnet.hr

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about molecular bases of pathogenesis and the course of illnesses, there are potential new improved therapeutic approaches.

More attention will be devoted to individual diagnosis and personalized treatment, that is, treatments tailored to individuals, or a group of individuals with a similar clinical picture and a similar genetic background.

It is common knowledge that without the uncertainty of the new, nothing new is possible. Research means recognizing challenges and taking responsibility for the new.

SCIENTIFIC INSIGHTS ABOUT COVID-19 FROM THE PAST FEW WEEKS?

Up till now, in June 2020, there have been over 20,000 published scientific papers on COVID-19, which is an unprecedented level of interest in any topic in the entire history of science. From all that research, I would like to point out two details that were recently confirmed. Sporadic research in several places in the world mentioned that the risk of developing the more severe form of the illness was higher for individuals with the blood type A and reduced for the blood type O. A recent study carried out in seven Italian and Spanish hospitals, aimed at trying to find genetic markers connected to a higher or lower risk of developing the more severe form of COVID-19, somewhat unexpectedly singled out the gene precisely responsible for blood type diversity. This gene (the so-called ABO locus on chromosome 9) was confirmed to be one of only two places in the human genome responsible for causing the aptitude toward developing the severe form of COVID-19. This is a strong scientific confirmation that the risk for developing the severe form of the illness indeed connected to blood types. The risk is increased by about 45% for the blood type A and reduced about 35% for the blood type O in relation to other blood types. The other place in the human genome connected to an increased risk of developing the severe form of COVID-19 was located on the third chromosome. As much as six nearby genes might be responsible for this (SLC6A20, LZTFL1, CCR9, FYCO1, CXCR6, and XCR1). Further research is necessary to prove which gene is responsible for the observed effect and why. These two new and interesting insights might provide scientists with new ideas on the viral mechanisms in the human body and help in developing new defense strategies against the novel coronavirus. Nobody expected that the antigens responsible for human blood types would have any connection to the effects of the novel coronavirus on the human body. The other scientific insight worth mentioning is the research into the application of blood transfusion. The blood is transfused from individuals who recovered from COVID-19 and developed antibodies to fight the virus (the so-called convalescent plasma) and given to patients suffering from the most severe forms of the illness. Attempts such as this marked the Spanish flu pandemic more than a century ago. In that time, many young people were dying, and there was also no cure or vaccine available. The doctors were trying everything possible to save the sick patients. Early attempts with transfusing convalescent plasma from recovered individuals to very sick patients indicated possible effectiveness in a small number of patients. However, newer and more quality research conducted on a larger number of patients is failing to prove any significant effectiveness. Still, we should wait for at least a couple of more reports, primarily the report from the Oxford clinical trials named RECOVERY (will be discussed in detail later on) to ascertain the effects of transfusing convalescent plasma.

SOME OTHER CLINICAL MEDICATION TRIALS ARE IN PROGRESS—WILL SOME EXISTING OR NEW MEDICATION SOON HELP US TREAT COVID-19?

Medication trials can be divided into two large groups. The first group consists of existing approved medications that might, alongside their primary purpose, affect COVID-19. The other group are medications specifically developed against the novel coronavirus. The research, testing, and manufacturing process of the second group is so complex that they should not be expected in the foreseeable future. Therefore, we are currently depending on the research into the effectiveness of the first group, i.e., already existing medications. The efficacy of existing medications which might also affect the novel coronavirus is tested in precisely designed clinical trials. Most of the research is focused on the medications that affect other similar viruses. Also, medications with a general anti-inflammatory effect are being researched, along with antibiotics aimed at preventing additional bacterial infections of different organs which can develop alongside pneumonia caused by the novel coronavirus. It was important to research the effectiveness of the antiviral medication remdesivir in reducing the mortality in severe cases of COVID-19. This medication inserts itself into the chains of the viral RNA molecule, which is the viral genetic instruction. In this way, it untimely terminates the protein synthesis needed to produce new copies of the virus. Its mode of fighting RNA viruses makes this medication very elegant, and it was developed as a cure for the Ebola virus. However, it failed to produce the desired effect against the Ebola virus. But scientists were hoping that its mechanism of action might be effective against the novel coronavirus. The first published research into the effectiveness of remdesivir showed that it might be effective in about two-thirds of the severe cases, and the mortality rate of patients on respiratory support seemed reduced from 50% to about 15%. However, that research could not adhere to usual standards because of the conditions in which it was conducted. After it was published, the journal received numerous comments from other scientists pointing out the design flaws of the research. Unfortunately, repeated and more extensive studies have failed to confirm the great effectiveness of remdesivir in reducing mortality. Still, they showed that this medication does reduce the duration of the illness by a couple of days. It was the first positive news from the sphere of medication research against COVID-19 because other recent studies have failed to produce any significant results. However, Oxford University published interesting news. As already mentioned, they are currently conducting a series of clinical trials named RECOVERY, which stands for randomized evaluation of COVID-19 therapy. They are simultaneously researching the effects of lopinavir-ritonavir, small doses of the corticosteroid dexamethasone, hydroxychloroquine, azithromycin, tocilizumab, and the so-called convalescent plasma (obtained from patients who recovered from COVID-19). They announced that the comparison of 2,104 patients receiving the corticosteroid dexamethasone in a daily dose of 6 mg and 4,321 control patients showed a reduced mortality rate of respirator patients from 40% to 28%. Also, among patients who required hospital care and oxygen but did not need respiratory support, the mortality rate was reduced from 25% to 20%. Dexamethasone was administered up to 10 days, and it cost as little as 6 USD. Its effect on milder cases was insignificant.

Dexamethasone has a strong anti-inflammatory effect, and it was primarily researched because doctors were hoping it might reduce the damage from the so-called “cytokine storm.” This occurs in the most severe cases of COVID-19, developing a severe immunological reaction that causes more damage to the organism than it helps to fight the viral infection. After this research is published, and if its results are independently confirmed, this will be the first medication to date showing an effect on reducing the mortality rate of severe cases of COVID-19. Still, we need to wait and thoroughly examine this research once it is published as a scientific paper as well as wait for independent confirmation of the observed effect from other parts of the world because it is not common for the results of research this important to be published without all accompanying documentation. If the results are independently confirmed, this will really be good and applicable news. The medication in question is very affordable, costing as little as 1 USD in poor countries such as India, so it would be readily available if its effectiveness is confirmed. Besides the described effect of remdesivir on reducing the length of the illness and the announced research on the effect of dexamethasone on reducing the mortality rate, science has not offered any other news on medication effectiveness so far. If it is confirmed, the effectiveness of dexamethasone is tremendous news because additional research into proper administration time, and increasing the dose might provide even better results than these initial findings.

DEVELOPMENT OF VACCINE AGAINST SARS-CoV-2 VIRUS: RECENT PROGRESS

First, we would need to prove that the new vaccine is effective and that it will protect the vaccinated individuals from the virus. This requires numerous volunteers willing to receive the new experimental vaccine and then be exposed to the virus. Before they are exposed to the virus, we need to wait to see if they develop antibodies that should protect them. Then, they are exposed to the virus. Following that, we need to wait to prove that the vaccinated individuals did not develop any symptoms although they were exposed to the virus. In an ideal scenario, this initial research should be conducted in conditions, where exposure to the virus is easy. However, in the developed parts of the world, these conditions are now harder to find because the anti-epidemic measures have greatly reduced the spread of the virus, but nobody can predict the situation with the virus in the future. In this manner, the success of anti-epidemic measures is simultaneously making the vaccine research that much harder, which will, in turn, affect the time needed to manufacture an efficient vaccine. After the vaccine effectiveness in developing antibodies and protecting from COVID-19 is proven, then their safety will need to be proven as well. Vaccines have to be harmless, and their only effect on the organism should be the developing of permanent immunity to the novel coronavirus. However, never have we in history, as humanity, had planned to simultaneously vaccinate four or five billion people. Historically, vaccines were always introduced gradually, country by country. This involved continuous learning from previous experiences and constant approach upgrades to develop the most effective and most safe vaccines. In order to be allowed to vaccinate billions of people at once, we would have to be absolutely certain that the vaccine would cause no harm. How can we be? It will require vaccinating millions of people and monitoring all the side effects to make sure none are significant before we can consider vaccinating billions. If this virus threatens the life of 0.5 to 1% of the populace, predominantly the elderly and

already ill, then the vaccine against it should not threaten anyone. If the new vaccine would be even slightly dangerous, considering the number of people which should be vaccinated, we would risk causing greater damage to public health than the virus itself. This is why the new vaccine safety trials will have to be well funded and conducted following the strictest criteria. Finally, after both the efficiency and the safety of the new vaccine is proven, it will need to be manufactured in massive quantities. This poses another problem. To simplify, each of the several approaches to the vaccine currently being tested requires its complex technology. To produce vaccines based on different technologies, we will need to prepare or build different factories. Constructing such manufacturing capacities could cost anywhere from several hundred million dollars to over a billion. However, few pharmaceutical companies or countries are willing to invest such massive funds into building and developing manufacturing capacities before it is scientifically proven which of them is the most effective and most safe. Certain manufacturing capacities are already existent, but it might happen that the most effective vaccine will be based on technologies that will require new manufacturing facilities. This would lead to another significant delay in the production and implementation of the vaccine for at least a couple of months. In conclusion, even the process of procurement and distributing the vaccine is not straightforward. It will require the production of billions of glass vials to store the vaccine doses, they will need to be distributed worldwide, maybe even refrigerated, and delivered to billions of people. Although currently, numerous people are dedicatedly working on developing the vaccine, all the described steps will require time. This is why nobody believes anymore in the possibility of effective and safe vaccines for the broader populace by the end of 2020, although it will be a very pleasant surprise if that would happen. Finally, science still cannot confirm how long will the vaccine-induced immunity against the novel coronavirus last because there is no guarantee that the immunity will be long-term. The virus has not been among us long enough for us to know, we have been researching it only for a couple of months. This is another puzzle connected with the novel coronavirus which will be answered in time.

However, it must be acknowledged that many errors will be made if we are to make progress. Therefore, we need a culture of tolerance for error, in which the error is seen as a constitutive part of acting.

While medicine is international, legal regulations are not. We can react in different ways to the challenges that these international differences pose to education in each country. Science must transcend parochial national laws. Innovation arises through creative and intensive processes in dealing with scientific problems. These processes are extremely complex and require intensive cooperation between many different disciplines in the natural sciences. These teams, their optimum composition, their necessary degrees of freedom, and their support should be the focus of every leader. Knowledge should be able to flow across borders through international partnerships and coordination at the global level. The International Academy of Perinatal Medicine and World Association of Perinatal Medicine are paradigms of this effort.

HOW CORONA PANDEMIC INFLUENCE GLOBALIZATION

Most of us welcomed positive globalization process, but with the recent pandemic of corona disease, we are introducing negative part of globalization with many unpredictable developments. The

future relies on the past, and it is just proper time to show our own vision on the future and situation after pandemic is over.

Our Academy has both the responsibility and the privilege to conduct scientific research on COVID-19 pandemic impact on maternal, fetal, and neonatal health. Recently published studies in prestigious journals are unfortunately of very suspicious quality, and the results of the studies give not only little additional information for healthcare providers but also cause confusion with inappropriate adjustments of the antenatal care without scientific background.

In our very recent editorial in the *Journal of Perinatal Medicine*, we tried to answer question that recent scientific news is worth paying attention to.³

First, it should be stated that most of the scientific research on COVID-19 (also during pregnancy) is currently being conducted in a way that would probably be completely unacceptable to serious science in any other circumstances. The research has been published fast-tracked and possibly without proper peer-review process, using small and often insufficiently representative samples, numerous imperfections in the research design are being overlooked as well as many other details which are usually taken into account. All these factors resulted in a flood of superficial research, all in a desire to get answers as fast as possible. Unfortunately, rush and wrong answers can cause greater damage than an accurate but slow one. An additional problem is that every single research is getting huge media attention worldwide, with an increasing number of published preprint results; results of scientific papers which anyone can publish on prepublication platforms, without any serious scientific or professional review. Scientists will have no trouble distinguishing serious research from those with serious flaws, but journalists will have a harder time making that distinction. Thus, it is realistic to expect a whole series of daily reports on various "scientific research results" that will in a week or two turn out to be wrong or unfounded. It is a shame that so much time and media space is constantly being wasted on completely unfounded reports and results. But that is one of the fundamental characteristics of this "infodemic" we're experiencing.

GOOD NEWS AND BAD NEWS ON COVID-19 PANDEMIC

As an illustration, we will review some most important open questions and scientific insights mentioned in the media in the past weeks and which are worth following in the near future. At the moment, some scientific news seems very unfavorable in terms of fighting COVID-19, but they require significant further research. It appears that the virus can reemerge and again become detectable in patients who recovered and had tested negative. This is being thoroughly questioned now, because it is possible that the tests are not reliable enough or that the virus takes a lot longer to be eliminated from the body. However, if it turns out that recovered patients can become re-infected that soon, this would be very bad news. It would mean that the immunity achieved against the novel coronavirus is not permanent as well as that the vaccine might not be as effective as we had hoped. But it is still too soon to draw such conclusions; we need to wait for new larger scope research. Furthermore, it is less and less likely that the virus will fade with the coming warm weather, because the newest data from western Africa and other warm and humid countries show that the virus continues to successfully spread. When a larger number of countries achieves significant reduction in the number of deaths

and new cases, there will be very few countries willing to open their borders without imposing a 2-week isolation for everyone entering. This will make international travel in the coming months significantly difficult, so it is reasonable to expect that the coming tourist season will mostly cater to domestic tourists, and only if we succeed in avoiding a second quarantine. Foreign tourists are fairly unlikely at this point, but we should allow for the possibility that things might change in the coming weeks and positively affect the current pessimistic projections. More bad news is that the antiviral medication lopinavir, a protease inhibitor combined with ritonavir for an effective treatment against the HIV virus which causes AIDS, has against all hope shown little to no benefit in treating COVID-19.

However, there is some positive news as well. The comparison of data from China, Italy, Spain, and the United States so far shows that the novel coronavirus has not mutated in the sense of increased "death rate" or "spread coefficient" but that its genome is more stable than that of the influenza virus. Also, there are first indications, which are yet to be scientifically confirmed, that the blood plasma transfusions from patients recovered from COVID-19 could provide hope for severely ill patients by increasing their levels of circulating early response antibodies. But it will require significantly more research of a much larger scope before such recommendations could be made, although they make sense from a scientific point of view. The best news, however, is the early description of the effectiveness of the antiviral medication remdesivir for most severe cases of COVID-19 disease, which is already available to patients in Croatia. Currently, this means that remdesivir is news that should be closely followed for the use in the most severe ventilator-dependent patients with a great risk for undesirable outcome including death. However, it has to be pointed out again that the studies so far have not been up to the formal standards, lacking a control group, and considerably extensive research is needed before we will be able to accurately understand the effectiveness of remdesivir. But, as already said, in the light of everything we know so far, and especially knowing of the reduced "death rate" in the community, remdesivir is the best good news we currently have.

But prevention is the best cure of new coronavirus disease. At the moment, the world is fighting the virus by old epidemiological methods which showed effective if timely introduced and strictly followed. The vaccine is the hope in a fight with this unpredictable and yet not well-known enemy. The investigation on the development of the vaccine is going on and still, there are many unanswered questions hardly any answers. Hopefully, new coronavirus is not the first unknown microorganism that mankind has been confronted with. We were successful in fighting with unknown microorganisms before, and we are convinced that this will be the case with the COVID-19 virus as well. We have to be persistent and optimistic!

Most recent advances in corona pandemic we will shortly review here.

The principle of the Academy should not be: "any information is better than none." The information should be feasible, usable, and implementable and proven according to the best scientific principles. It may be that the research of the members of the Academy will not be the first to be published, but we certainly aim that the scientific evidence published by the Academy will be the best one.

Indeed, globalization is both inevitable and usually desirable and contains advantageous and disadvantageous issues. It is a

source of both hope and apprehension and is an accelerating process in flow of information, technology, goods and services, and production means. Globalization has a complex influence on perinatal health. The bonds that link perinatologists together transcend geographic, political, religious, and lingual differences, resulting in a globalization that optimizes perinatal care. In this review, we will discuss some of the global problems facing modern perinatologists.

SOME OF PERINATAL HEALTH PROBLEMS: GLOBAL TRAGEDIES

During the time of fast globalization, it is clear that no human endeavor is more adapted to the globalized world than science and medicine for their very nature is global. This is an immense privilege but equally so an immense responsibility for the development of humanity.

The dominant features of perinatal health in most parts of the developing countries are high maternal death and morbidity rates, huge perinatal and childhood losses, and high birth rates. There are good reasons to define it as a global tragedy in our time.^{1,4}

Economic globalization in the absence of strong protective global political measures has caused massive inequalities between nations and within them. United Nation sources reveal that the world's three richest families are wealthier than the poorest 48 nations combined; 1.3 billion (22% of the world's population) live on less than US\$ 1.00 a day. In terms of the levels of GNP per person per year, the top five countries (range US\$ 27,500–US\$ 40,600) are 500 times better than the poorest five countries (range US\$ 80:170). This level of poverty ruins health. For example, in 1995, in Port Harcourt in Nigeria, with its high maternal mortality rate, the cost of one cesarean operation (US\$ 274) was equivalent to 9 months' average salary. In this situation, women die in childbirth because they cannot pay.

The current epidemic of HIV infection, transmitted from mother to newborn during pregnancy, delivery, and inadequate breast feeding affects the perinatal mortality and morbidity of the newborn and infant. This is a treatable condition given access to appropriate drugs and financial resources. The problem is even deeper than 7 million perinatal deaths. Each year, 22 million low birth weight infants are born, mostly in the developing world. Besides their high mortality, they place a heavy financial burden on available health.

Furthermore, the rate of HIV/AIDS infection is accelerating, with young women particularly at risk. About 47% of the 34.3 million adults with HIV are women, and even worse WHO estimate half of all infections in the developing countries occur between the ages of 15 and 19. Raising awareness of the critical role—the ability to make reproductive choices—has in the spread of HIV, is also, a fiduciary and, therefore, an ethical duty of physicians.

Unfortunately, new problems emerge. Marriage during adolescence is likely to result in too early and too frequent childbearing, and early sexual debut outside of marriage increases the risk of unwanted pregnancy and clandestine abortion. In contrast, education elevates self-esteem, delays marriage, and increases the like hood of health-seeking behavior.

There are neither easy solutions nor short cuts to the problems of reducing the prevailing high maternal and perinatal mortality ratios in poor countries. At the height of the child survival campaigns of the 1980s, however, concerned researchers and professionals observed that the worthiest efforts to promote

maternal and child health in developing countries were doing little to reduce mortality and morbidity among mothers. In 1987, the World Bank, WHO, and United Nations Fund for Population Activities sponsored a groundbreaking international safe motherhood conference in Nairobi, Kenya. Out of that event grew collaboration among the Bank, UN Organizations, and private institutions to foster operations research on maternal mortality and, in other ways, to advance the goal of cutting maternal deaths in half by the year 2000.⁵ Subsequently, the Prevention of Maternal Mortality Network was established to engage the capabilities of leading physicians, midwives, and social scientists within Africa in research on the magnitude and causes of maternal mortality and morbidity in their region and to take responsibility for advocating or implementing programs to promote maternal health.⁶ Results of these efforts have included smaller programmatic initiatives that are showing some success, such as the essential obstetric functions at the first-referral level, greater use of the partogram, and maternity waiting homes.

Although the need for good, insightful, systematic research is constant, research in a resource-poor situation may be more useful if it is focused on design and evaluation of interventions to reduce morbidity and mortality.²

The manner in which education influences pregnancy outcome is not well understood and requires elucidation. Its correlation with income and residence need to be inspected as well.

Further characterization of the mortality, morbidity, and disability associated with induced abortion is essential.

There is no published evidence of the causal relationship between female genital mutilation and HIV infection, yet transmission from an HIV-infected partner when a scared vagina is subjected to repeated trauma or lesions is possible. Inclusion of this dimension in other studies of HIV transmission could be helpful in this respect.

Imaginative approaches have been taken to resolve aspects of healthcare delivery that are unresponsive to women's gynecologic and obstetric needs. These, however, have not been documented or catalogued in a practical way that might foster replication. The same can be said for the treatment guidelines and algorithms that have been developed in a number of settings for different levels of care.

It is clear that maternal and perinatal morbidity and mortality are very sensitive indicators not only of the strengthening of the healthcare system but more broadly of a society's achievement toward equality between men and women.^{2,5-11} We possess the knowledge and the tools to make permanent disability and death during pregnancy and childbirth almost as uncommon in poor nations, as it is in the richer ones. However, more than ever, we need to develop education and training for physicians who would provide the care and research in perinatal medicine. The United States developed its own system. The American College of Obstetrics and Gynecology is responsible for the education and practice standard.¹² In United Kingdom, the Royal College of Obstetricians and Gynecologists has the unique position of providing education, developing standards, and determining how many specialists and sub-specialists are trained. In other countries, there are various levels of development and planning. The European Board and College of Obstetrics and Gynecology for instance are working on the accreditation of European hospitals not only for obstetrics and gynecology standards of care but also for setting the training and teaching rules for the subspecialties such as maternal fetal and perinatal medicine, reproductive medicine, gynecological

oncology, and urogynecology. There is, therefore, enormous need for the advanced medical education and healthcare delivery systems to serve as models for the developing countries. To this end, World Association of Perinatal Medicine serves as leading organization and could become a major perinatal force for the further improvement in perinatal care throughout developing world. World congresses of perinatal medicine in developing countries are excellent examples of how all of these ideas can be put into practice.

By changing the burden and disease pattern and rapid spread out around the world, it was recognized that globalization has a complex influence on health: developed countries again become more vulnerable for communicable diseases (SARS, viral and bacterial infections caused by antibiotic resistant strains, MDRTB, AIDS/HIV) and developing countries faced by numerous communicable diseases, start to suffer more and more from noncommunicable diseases (diabetes and cardiovascular disorders). A recent book on diabetes and pregnancy is in fact confirming that diabetes is becoming the most spread disease not only in the developing world and that gestational diabetes is the signal of development of the disease in later age.¹³ These disorders become unsustainable for health systems and economy of developed and developing countries as well. Therefore, today's problems of economic development are inevitably discussed together and in association with health indicators like life expectancy at birth, perinatal child, and maternal mortality.

It is clear that health as a global public good becomes a necessary investment for economic development in developing countries. It was shown that human development index depends to a great extent on life expectancy at birth and indirectly on mortality rate. There is no doubt that continuous rise in life expectancy is not spread out equally, and differences among regions in the world even rise. Indeed, health is one of the facets of globalization that has complex relations. Some health impacts of globalization can be defined as positive such as telemedicine that could help in the provision of services in remote areas.

Undoubtedly, health status is an essential part of human well-being. However, the greatest improvements in people's health have resulted not from health services but from social and economic changes, and it remains high opportunities to do even better. In health care today, scientific and technological frontiers are expanding at unprecedented rates, even as economic and financial pressures shrink profit margins, intensity competition, and constrain the funds available for investment. Worldwide experience shows that health must be seen as a central factor not only in social development but also in countries' ability to compete on the global economic stage and achieve sustainable economic progress. How do we respond, and are there any optimistic signs on horizon?

CORONAVIRUS—HOW DO WE RESPOND?

The COVID-19 pandemic exposes the weaknesses of globalization and serves as a warning on the constants of the natural law on the survival of any nation or human community: Only a well-organized modern state is capable of protecting its citizens, and this presumes the acceptance of the roles of borders, control, and the authority principle, while the economic and healthcare sovereignty requires the necessity of the principle of self-sufficiency in the areas of agriculture, nutrition, and the necessary production of medication and primary products for the needs of the populace.

In situations when everyone is threatened, all the myths about global solidarity and fraternity fade away like morning mist in the

sun, and we quickly return to Pavlovian pack reflexes, survival instincts, and safeguarding our own nation reflex. This is well illustrated by the current situation in Germany, where the historical partner in the creation of contemporary Europe is closing its border with France and refusing to export the necessary protective medical equipment. On the other hand, because of the EU's poor solidarity and coordination of a joint response, China is the one sending help to Italy and probably providing France with the necessary medical supplies. The global coronavirus pandemic has swept away the pseudo values of linear progress and progressivism, fight against inequality and discrimination, phobia machinery, and egalitarian ideology, all in the name of the reality principle and pure survival.

Despite the fact that the Union adopted a decision on closing its borders, there is no such thing as a hermetic border, and closing them will not stop the virus from spreading. The range and rhythm of viral contamination are unpredictable. The great Athenian plague in 430 B.C. was caused by the arrival of the Persian army; the Spanish flu that caused between 50 and 100 million deaths in 1918 was not caused by the First World War but allegedly by American soldiers bringing the virus to European soil. All this was long before high-tech globalization. The Black Death which devastated medieval Europe in the 15th century and killed over a half of the populace of Europe in the span of 5 years did not develop in a globalized context.

The sudden emergence of the novel coronavirus once again shows the vulnerability of our "risk society," as it is referred to by Ulrich Beck, which alongside scientific and technological progress continuously generates new dangers and risks, many of which are ecological and health-related, with global dimensions and consequences. Beck points out that "there are no reserves left where we could deposit the "collateral damage" of our activity".

The global coronavirus crisis is not just a sanitary crisis, but it reveals the reality of the globalized individualist liberal world that keeps degrading further and further: the disappearance of social solidarity, responsibility, and duty toward the community, the collapsing of the education system, identity crisis, moral crisis, and a crisis of faith in our institutions.

The pandemic reveals the negative consequences of globalization because it has brought about increased circulation and dissemination of bacteria and viruses, hypermobility and global connectivity, dependence on China and the liberalism ideology which rests on the blind faith in unending growth and progress.

Today's health crisis illustrates the fragility of the neoliberal globalization model and the utopian rejection of the concept and role of country borders. This pandemic is a counterpoint of the third major world crisis since the end of the bipolar world and the dissolution of the communist block in the 1990s. The first major global crisis in 2001 started with the terrorist attacks on the September 11 and opened the global security crisis that threatened to turn into a global generalized war. The second major global crisis was the financial crash of 2008 which spread from the United States all over the globe and threatened the functioning of the global economic and banking system, causing a generalized panic and fear of the possible collapse of the financial system. Ten years later, the crisis caused by the coronavirus pandemic indicates lessons very similar to those learned in the 2001 and 2008 global crises; that despite certain signals and threats of global chaos, the optimism and blindness of world economic and political actors always reflects the firm belief in the impossibility of a global systemic collapse. On the other hand, when a global crisis does arise as is the case with the current health crisis, we are

faced with a similar scenario of media amplification and hysteria, collective panic and psychosis.

Every past crises, including the contemporary pandemic crisis, are direct consequences of a globalized and interdependent world, as it was described in the 1970s by Joseph Nye and Robert Keohane, which just goes to prove the vulnerability and fragility of our world. The problem is that the western world still refuses to learn from past experiences because when the crisis subsides, it quickly returns to the destructive models of neoliberal capitalist exploitation, spreading the delusion of a permanent, and self-renewing management system.

Every analyst, expert, and commentator speaks about a generalized collapse: the collapse of the health system, the economy, the oil industry, the global GDP, the stock markets... but nobody points out that this might just be a dress rehearsal for the future collapse of a worn-out and destructive model which has reached its limits. It is not, as numerous apocalypse prophets and catastrophe mongers would like, the end of the world but rather the end of one world – the world of neoliberal hyper-globalization, the utopic faith in eternal and happy globalization and unending growth, that is conclusively showing it is depleted.

COVID-19 AND BLAME GAMES: BAD EFFECTS ON PUBLIC AND GLOBAL MENTAL HEALTH

The COVID-19 pandemic is posing numerable and unprecedented challenges and threats worldwide at multiple levels and fields with unpredictable consequences: medical, social, political, economic, religious, cultural and civilizational.¹⁴ In addition to really huge dangers of coronavirus for health and life of many million people, the reactions of the politics, media, and many influencers to COVID-19 have opened many pathways to poorer individual, public, and global mental health. Harsh rhetoric, blaming, threats scapegoating, and punitive policies reflect badly are related to ill mental health. COVID-19 crisis from the very beginning has been followed by divisive and disruptive psychosocial and political blame games. Active or passive blaming is an inherent feature of human beings in order to shift responsibilities onto others, single out a culprit, find a scapegoat and pinpoint a target. In association with finger pointing and scapegoating there is a creation of binaries that identify agency as good or bad, right or wrong, moral or immoral. The scapegoat is expectedly always bad, wrong and immoral, commonly black evil. Scapegoating contributes to dividing world of “them vs us”, we are OK, good people, they are not OK, they are bad people, real villains. American politicians and organizations have accused/blamed China for the crisis, while China has sought to pass the buck back to the United States in what, by early May, was an increasingly ‘war of words’. Chinese people across the world have been pointed out for the creation and spread of virus putting ordinary people at dire risk of various forms of attack and violence. On the other side, anti-Western sentiments among Chinese communities were also registered all over the world. In India, Muslims were scapegoated for the spread of the virus. In the literature, one can find many other examples of blame games and scapegoating.

Politicization of medicine and science is not a new phenomenon. Blame games have been fueled by dramatic and selective reporting about COVID-19 and apocalyptic messaging about millions of dead people, coming recession, unemployment and poverty, etc. Terrifying and despair provoking misinformation and messages have had detrimental effects on mental health in many countries. By being

too pessimistic and by exaggerating COVID-19 effects pandemic forecasting made by some experts and many influencers, sometimes looking like partisan bickering, has been particularly detrimental. The rise of frustrations, fragility, irritability, aggressive behavior, and fearfulness as well as an increase of the different stress-related mental disorders such as anxiety and sleep disorders, depressive disorders, post-traumatic stress disorders is not surprising.

The detrimental effects of the COVID-19 blame games are seen in a lack of cohesion and coherence in the antipandemic solving strategies. COVID-19 as global problem requires collaborative approach of all countries and nations and it is the moral obligation for all to stop blame games, and instead, respect each other and build trust and good faith. Crisis management needs the joint scientific research on antiviral medication and vaccines as well as the creative cooperation in the WHO and other international organizations.

A NEW PHASE OF GLOBALIZATION: GLOCALIZATION AS A WAY TOWARD COMPASSIONATE SOCIETY AND EMPATHIC CIVILIZATION

Global problems require global solutions. COVID-19 pandemic clearly show that Europe as well as the Global World need a common disease as well as moral authority and therapeutic strategy. The COVID-19 pandemics has stopped hyper-globalization and shown how vulnerable and fragile it can be and it has incited the trend towards deglobalization. The antidote to COVID-19 is the human spirit manifesting in empathy, national unity, global solidarity, and glocalization “think globally, act locally” as a new phase of globalization. Empathy is creative process that activates drive in human beings to see, feel, mentalize and accept another’s perspective of the world and create joint vision of it through culture of dialogue and collective learning. Empathy acts as a bridge between people of good will forming collective mind and humanistic self and drives people to step out from selfishness and practice altruism. COVID-19 is in the same time a public health crisis and a possibility for downsizing the consumer economy and increasing environmental awareness through glocalization in network of societies in which people do live much more locally, but thinks much more globally and empathically.¹⁵ COVID-19 crisis is also an opportunity for better future if humankind realizes the importance of public and global mental health and recognizes and accepts a real possibility of a collective hero’s journey to compassionate society and empathic civilization.¹⁶ Societies that have usually proved successful are those that respect each other and cooperate with one another in a spirit of trust and do not enter the blame games and destructive collective emotions. Humankind is at the cross-roads: to travel down the route of blame games, global disunity, selfish society, and narcissistic and paranoid psycho-cultures or to choose the path of humanistic self, global solidarity, humanistic psycho-culture, and empathic civilization.¹⁷ Many different professions, institutions, and agencies will have to collaborate to formulate efficient solutions for multiple problems and create global joint vision of compassionate society and empathic civilization. Working in interdisciplinary and international teams requires competencies in empathic cross-cultural communication to efficiently cooperate with different communities in education for compassionate society and empathic civilization and building joint projects in different business, science, medicine, and culture fields.

HOW MUCH HAS COVID-19 CHANGED OUR FUTURE? EXPECTING NEW SHOCKS WILL BECOME A PERMANENT PROBLEM

Taking into account everything we have learned about the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), so far it comes as a surprise that there has not been a more intense scientific debate on whether the blind lockdown model, implemented by most national governments, was truly an appropriate response to the challenges posed by the pandemic. Today, when we know more about the transmission modes of SARS-CoV-2 (primary mode is by respiratory droplets) as well as how dangerous it truly is (much less than previously thought), it is time to reassess the first radical epidemiological reactions. This needs to be done not to accuse someone of mistakes but in order to plan future action.

It is clear that in the beginning numerous countries opted for radical epidemiological measures because we did not have enough information about the COVID-19 pandemic, but now the time has come to ask the questions about the weirdly mingled responsibility of politicians and epidemiologists who persist in scaring the populace with threats of the virus without considering the general consequences. Individuals who bravely provoke the world scientific community by insisting on a discussion based on data and not assumptions are actually very rare.

One of the most famous “provocateurs” is Michael Levitt, the Nobel prize winning biophysicist and structural biology professor who’s made a name for himself by developing multiscale models for complex chemicals. Since the COVID-19 pandemic started, he has been spending 18 hours a day analyzing all available data, drawing conclusions, making prognoses and publicly debating his findings. He is also the one who foretold the reduction of new case numbers and begun explaining why in the case of SARS-CoV-2 we cannot speak of an exponential growth, although the phrase “exponential” became a buzzword in media reporting, and even in scientific articles. He warned the scientific doomsayers that they are highly exaggerating the expected death rates, and his greatest “sin” was pioneering the attitude that blind lockdown will not save lives but that it will cause dramatic economic consequences and indirectly cause more deaths than COVID-19.

Until recently, statements like these seemed wildly extravagant. It did not help that Levitt was backing everything with mathematical analysis of exact data. Today, Levitt is a resentful scientist calling out the entire epidemiological profession; he is warning that epidemiologists are guided by the idea that it is better to implement radical epidemiological measures and prevent the pandemic from escalating but that they are irresponsibly disregarding the damages caused precisely by those radical epidemiological measures.

The biggest problem of the COVID-19 pandemic is that it caused economic damage of epic proportions.

Levitt is the first one in the scientific community who is demanding not just that we discuss the data but that we assign responsibility for the wrong assessments. Taking into account the scope of the damages, it is very likely that numerous epidemiologists who advocated radical epidemiological measures will resist Levitt’s arguments, defending their positions in every manner possible. A good example is Ioannidis, one of the most respected contemporary researchers, who was vilified as a bad scientist when he warned that actual collected data showed the SARS-CoV-2 infection fatality rate to be much lower than it was first claimed. His history as one of the most genial modern minds on the scientific stage, the numerous prestige titles he held, and

being one of the twenty most cited scientists in the world—none of this mattered any more.

Three scientists employed by American institutions with the best access to statistical data in the world—the Federal Reserve system and the National Bureau of Economic Research—published an analysis titled “Scarring Body and Mind: The Long-Term Belief-Scarring Effects of COVID-19”. The authors of “Scarring Body and Mind” reason that the greatest economic consequences will be due to changes in behavior after the current health crisis is resolved. They stipulate that expecting new shocks will become a permanent issue and that living in fear will cause greater damage to the long-term growth than this short-term reduction in output. Which was in itself a frightening experience. Long-term consequences projections in several scenarios of the authors are, at the very least, twice as bad—precisely because they are long-term: the fear and uncertainty rob us of perspective, rob us of a future, rob us of the growth which the future generations should inherit.

Especially interesting is the relationship of Levitt and Neil Ferguson, the scientist who may be the most responsible for spreading the global fear over the SARS-CoV-2 virus. Of less importance is how Levitt is angrily complaining that arrogant Ferguson did not respond to his e-mails. Much more important is that the scientific community as a whole failed miserably at mutual communication and discussion of facts. The coordination of scientific resources on a global scale was completely nonexistent, while at the same time two-thirds of scientists are boasting of being globalists. The world today would probably be much less different from the prepandemic time if the global coordination of science did not fail so miserably. Is not it bizarre that a Nobel prize winner is trying to reach the epidemiologist Ferguson and he doesn’t want to or can’t find the time to speak to one of the greatest contemporary minds when it comes to data analysis and projections? Or is this considered normal behavior in the world of contemporary science? The second answer isn’t impossible.

At this moment, Great Britain has little over 40 thousand casualties of COVID-19, which is more than Ferguson projected when he asked for strict social distancing measures, testing and isolation of the infected. He believed that his measures would keep the number of infected below 20 thousand. So, he not only overestimated the danger of the virus, but also the efficiency of his measures in protecting against a virus which turned out to be much less dangerous than he announced.

Although Ferguson was called out by other virologists for strained assessments on which he based his models (e.g. that 50% of households will not observe quarantine), Ferguson did not resign his position in the Scientific Advisory Group for Emergencies for making wrong projections. He only resigned after it was discovered that he was meeting with a married woman, undermining the governments social distancing message. “I acted in the belief that I was immune, having tested positive for coronavirus and completely isolated myself for almost two weeks after developing symptoms.” Ferguson did not do anything illegal because he did not leave his house. He was only visited by a certain woman. Twice. That doesn’t seem like too much. Twice is still twice, and he had enough free time to respond to the emails of the anxious Levitt. But, he did not.

REFERENCES

1. Kurjak A, Di Renzo GC, Stanojevic M. Globalization and perinatal medicine – how do we respond? *J Mat-Fetal Neona Med* 2010;23(4):286–296. DOI: 10.3109/14767050903105889.



2. Kurjak A, Dudenhausen J, Chervenak FA. Does globalization and change demand a different kind of perinatal research. Editorial. *J Perinat Med* 2008;36(4):273–275. DOI: 10.1515/JPM.2008.068.
3. Kurjak A. Pandemic corona virus issue – how do we respond? Academy corner editorial. *J Perinat Med* 2020(5):aop. DOI: 10.1515/jpm-2020-0198.
4. Kurjak A, Stanojevic M, Sen C, et al. Maternal mortality: tragedy for developing countries and shame for developed world. *Donald School J Ultras Obstet Gynecol* 2020;14(1):17–27. DOI: 10.5005/jp-journals-10009-1621.
5. World Bank. Data and research. Available from: www.web.worldbank.org (accessed 3 September 2007).
6. Carrera JM. Maternal mortality in Africa. *J Perinat Med* 2007;35(4):266–277. DOI: 10.1515/JPM.2007.087.
7. Kurjak A, Carrera JM. Declining fertility in developed world and high maternal mortality in developing countries – how do we respond? (editorial). *J Perinat Med* 2005;33(2):95–99. DOI: 10.1515/JPM.2005.017.
8. Drazancic A. Maternal mortality. *Gynaecol Perinatol* 2005;14:7–17.
9. Kurjak A. Poverty as an influential factor for ill perinatal health. *Gynaecol Perinatol* 2008;17:63–67.
10. World Health Organization. *World Health Statistics* 2007. Geneva: WHO; 2007.
11. Manila Bulletin of UN. World population will reach 9.2 B in 2050. March 15, 2007.
12. Kurjak A, Dudenhausen J. Poverty and perinatal health. Editorial. *J Perinat Med* 2007;35(4):263–265. DOI: 10.1515/JPM.2007.089.
13. Hod M, Langer O, Di Renzo GC, et al. *Diabetes in pregnancy*. 2nd ed., Oxford: Informa; 2008.
14. Jakovljevic M, Jakovljevic I, Bjedov S, et al. COVID-19 pandemia and public and global mental health from the perspective of global health security. *Psychiatr Danub* 2020;32(1):6–14. DOI: 10.24869/psyd.2020.6.
15. Goffman E. In the wake of COVID-19, is glocalization our sustainable future? *Sustainability: Science, Practice and Policy* 2020;16(1):48–52. DOI: 10.1080//15487733.2020.1765678.
16. Jakovljevic M. COVID-19 crisis as a collective hero's journey to better public and global mental health. *Psychiatr Danub* 2020;32(1):3–5. DOI: 10.24869/psyd.2020.3.
17. Jakovljevic M, Kurjak A, Jerkovic A, et al. Spirituality, religiosity and nationalism from the perspective of public and global mental health. *Psychiatr Danub* 2019;31(4):382–391. DOI: 10.24869/psyd.2019.382.