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## Global pandemic perspectives: public health, mental health, and lessons for the future

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### The COVID-19 pandemic: the world's wake-up call to invest in equity and preparedness for sustainable development

The COVID-19 pandemic has shown how health emergencies can stop sustainable development in its tracks. This crisis has claimed millions of lives and it has wreaked havoc on economies, political parties, global supply chains, businesses, and livelihoods, as well as health, education, and international travel systems. Any doubt that health is a political choice, and a social and economic imperative, has surely been dispelled.

Indeed, the global response to Ebola, H1N1, severe acute respiratory syndrome (SARS), and other infectious diseases that have spread internationally tells us that advocates should continue sounding the alarm for the necessity of investing in preparedness as an integral element of resilient health systems everywhere. Once the horror of this crisis fades, business as usual should not resume. The lessons from this disruptive period in human history should be taken up by societies, across sectors, and by health systems and communities to build towards better, more holistic, sustainable development.

The COVID-19 pandemic has shown that science delivers results. Safe and efficacious vaccines, therapeutics, and diagnostics were developed at breakneck speed with international and public-private scientific collaboration. The challenge has been in making sure these essential products are distributed fairly and equitably.

The local production agenda, which has strong political leadership from the African Union and its heads of state, is a key strategy towards ending the delays faced by low-income and middle-income countries, particularly those in Africa, in accessing life-saving commodities. The establishment of a messenger RNA hub in South Africa, for example, is also opening the door towards the development of vaccines for other priority diseases, such as malaria and HIV, in African countries. It is clear that the private sector, using its resources and networks, can have a transformative role in health and development, with equity as a guiding principle for partnerships. Strategies to engage large pharmaceutical players in this endeavour are also needed.

Overall, the global inequities witnessed during the COVID-19 pandemic point to the need for updated development models that seek to build local institutional and workforce surge capacities and that facilitate progress at an equal pace. Multilateral mechanisms set

up to distribute COVID-19 tools equitably, such as the access to COVID-19 tools accelerator and the COVAX facility, have made important contributions to the global response. These are good starting points for the kind of international solidarity that should be aspired to, acknowledging that there are many aspects to be improved, including better acknowledgment of the risk of prioritising national self-interest.

Greater attention to equity within countries is also needed to realise sustainable development. We have seen during the COVID-19 pandemic that women, people in marginalised and minority ethnic groups, and those in low-income households are among those who have suffered the most and faced the greatest setbacks.

Outbreaks start and end in communities, and so communities should be engaged as partners in emergency preparedness and response. A contract between governments and citizens would help to build trust and hold each party accountable for their respective roles.

Investments in social care architecture, including social safety nets, education, infrastructure, and other basic necessities that are required to lead a healthy life, will be key. Crises test trust and so these investments should happen continuously. It is too late to start social reforms when disaster strikes.

Mistrust and scepticism have facilitated the rapid spread of misinformation. People have experienced increasing fatigue and frustration as the pandemic has dragged on. These are human behaviours that call for a paradigm shift from biomedical (epidemiological and virological) models to the holistic integration of an emotional, psychosocial, and anthropological responses.

At the level of health systems, we have seen the value of universal health coverage. There are examples in countries at all stages of health-system development being overwhelmed. These examples tell us that continuous investment will be important going forward, along with the how of this investment, linking it with actions to build preparedness, resilience, and dexterity.

The availability of data to guide decision making is crucial. We are scratching the surface of the possibilities of big data, machine learning, and other technologies that have the potential to revolutionise surveillance, early warning, timely reporting, and prompt effective response to infectious diseases.<sup>1</sup> One good practice that has emerged in many countries has been the establishment of

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high-level, multisectoral taskforces to steer the COVID-19 response. The creation of these mechanisms recognises that an all-of-society approach is needed to fight COVID-19.<sup>2</sup>

National and global coordination platforms have inevitably brought together politicians, policy makers, and scientific advisers, and there is tension in balancing science and politics. Strategies for managing this balance also needs further discussion. At WHO, we have a contingency fund for emergencies, which has been incredibly useful in releasing funding quickly to kickstart response operations. Setting up a similar type of fund at the national level could assist countries to minimise delays in making operational funding available.

Finally, the International Health Regulations are the global legal bedrock of emergency preparedness and response.<sup>2</sup> There have been challenges during the COVID-19 pandemic relating to the sharing of information between countries, differing requirements for international travel, international contact tracing, and the diagnosis and treatment of people who have COVID-19. Collaborative strategies are also needed to ensure equitable access to vaccines, medicines, and other essential supplies, including sharing the know-how and tools to expand global production capacities. Common standards, incentives, and enforcement mechanisms are needed to improve pandemic preparedness and response for the future.

Looking ahead, strategies to sustain interest in pandemic preparedness are needed. The lives lost, huge economic impacts, and reversals in development gains should provide the impetus, but sustaining interest will require committed political and technical leadership, predictable financing, constant advocacy, innovation, and mechanisms to ensure accountability.

### Science-based, public-involved, and swift administration strategy for future pandemic preparedness

An unprecedented COVID-19 pandemic has reminded us that emerging pathogens are a great challenge to human beings. Yet with modern scientific progress, we have achieved a great deal for the control of such a devastating disease after the 1918 influenza pandemic a century ago. We are facing more unknown diseases in the future<sup>3</sup> and learning from the COVID-19 pandemic will help us to protect our society and the Earth. We have identified three steps for handling public health emergencies. First, keep asking for the answers from science and ensure that the control strategy is science based. Second, make sure that the public understands, is involved in, and complies with the control measures. And, lastly, ensure that authorities make the right decision swiftly. Here, the so-called 4C principles should be adhered to: cooperation, competition, communication, and coordination.

First, I would like to provide an overview of the early investigation into COVID-19. As the Director-General of the Chinese Center for Disease Control and Prevention

and a scientist in Chinese Academy of Sciences, I experienced the whole process from the very beginning. We investigated cases of what was termed pneumonia of unknown aetiology in the clinic at the end of December, 2019. By early January, 2020, a novel coronavirus was identified as the causative agent.<sup>4,6</sup> We completed the genome sequencing of this virus and isolated the virus within a week.<sup>4,5</sup> The sequences were shared with the whole world through Global Initiative on Sharing Avian Influenza Data (GISAID).<sup>7</sup> Most importantly, we shared the epidemiological parameters by publishing in the *New England Journal of Medicine*.<sup>8</sup> These are the fundamental data that we gathered using scientific methods and these data supported the control strategy design, vaccine development, and the development of drug and clinical therapy. Thus, science is the base of future investigation of COVID-19, and we need to keep demanding answers from science to support future control strategies.

Although scientists tried their best to sequence the virus, the public were also affected by both the pandemic and the infodemic (caused by the so-called inforus, which is the mixture of information, misinformation, and disinformation). Strengthening public health at the community level, not only at the central government level, is the best strategy to make the public understand and get involved with the pandemic response. We need to make the public understand that fighting the virus is everyone's duty. Everyone in the public needs to be motivated and to get involved in public health.

The COVID-19 response in China is a good example of how the pandemic can be controlled. It includes three steps. The first step is to use science as the basis for seeking for truth. In China, we implemented containment measures at the beginning of the outbreak.<sup>9-11</sup> This action helped control the case numbers in China and help track the source of new cases.

Unlike many other countries, which had very high numbers of COVID-19 cases, China had only relatively low numbers of cases (before the omicron variant), which have been handled well so far. The second step is improving public understanding, involvement, and compliance. With a strong emphasis on public health at the community level, people make efforts to support work in public health, including the so-called 3Ws: wearing a mask, washing hands, and watching the distance between people. The last step is making the administration decision-making process pragmatic and flexible. Every idea and suggestion should be practicable and feasible. Together, they are essential for dealing with public health emergencies.

In addition to the COVID-19 pandemic, China was also affected by an information epidemic, or infodemic. Scientists were attacked and insulted by the public because of the perceived spreading of rumors and misinformation. We should remember that this scenario

is not specific for COVID-19. It can happen in every social topic or area. The development of social media spreads information, disinformation, and misinformation together and makes them indistinguishable. We need to work jointly to control both the pandemic and the infodemic.

In China, to the best of our knowledge, we have passed the containment and suppression stage. We are in the accurate mitigation stage in which occasional cases can be controlled and eliminated rapidly. We also hope that we can open the border in the future, but the detailed plan is still under discussion. All the strategies should be dynamically adjusted and applied.

The origin of COVID-19 is a topic that attracts the most public attention. Although the public have many guesses about the origins of the disease, including theories that it was man-made or leaked from a laboratory, we need to understand and answer this question with honesty and science. Instead of being a black swan event (ie, a rare and unforeseeable event), the outbreak of COVID-19 is more likely to be a grey rhino event (ie, a slowly emerging and obvious threat that is ignored or minimised by decision makers). As a member of the global preparedness monitoring board, I and other members claimed in the 2019 report that flu and coronavirus would be the viruses that would cause pandemics, and that humans were not ready to face these threats. In addition, we had a table exercise called EVENT 201, organised by Johns Hopkins University (Baltimore, MD, USA), the World Economic Forum, and The Bill & Melinda Gates Foundation, which was a mock scenario of the outbreak of a coronavirus called coronavirus associated pneumonia syndrome. The virus spread around the whole world in 6 months in this simulation, which showed a similar trend to COVID-19. This prediction was based on our surveillance. Coronaviruses carried by animals recombine naturally and exchange genes piece by piece, which could result in viruses that go on to cause human infections. There are seven coronaviruses that cause human infections including SARS, Middle East Respiratory Syndrome (MERS), and COVID-19. Scientists might find more coronaviruses with the potential to cause disease in humans through deeper investigation.

To deal with COVID-19, vaccine development has a high priority in many countries.<sup>12</sup> Vaccinations have eradicated smallpox and rinderpest. Believing in science and vaccination is crucial for fighting COVID-19. The strategies for developing COVID-19 vaccines includes inactivated, live attenuated, and viral vector vaccines, as well as DNA, RNA, virus-like particles, and protein subunit vaccines.<sup>13</sup> Here, I would like to call on countries to share vaccines that will benefit everyone on the Earth. If we do not share vaccines, the virus will share the world. In addition to vaccines, we have developed several drugs that are based on antibodies, small molecules, and also herbs from traditional Chinese medicine.

Similar to the slogan of 2008 Beijing Olympic Games, I would like to end my talk with “One world, One Health.” As we protect the environment, the animals, and human beings, we are protecting a healthy Earth. Let us work together for a shared future.

### Will COVID-19 finally change worldviews on mental health?

Mental health remains neglected despite calls for action. As people everywhere struggle with the mental health impact of the COVID-19 pandemic,<sup>14</sup> the calls have become more insistent. Advocates are united, coherent, and evidence-based in their work. Over time they have urged governments and funders worldwide to act on moral and economic grounds and on the basis that responding successfully to other health and communal problems requires good mental health.<sup>15–21</sup> Perhaps as others hope in other fields, the pandemic will make these calls irresistible and drive change in priorities in individual countries as well as internationally. A UN policy brief from May, 2020, calls for a redress of “the historic underinvestment in mental health... to reduce immense suffering among hundreds of millions of people and mitigate long-term social and economic costs to society”. UNICEF, in 2021, noted that “despite widespread demand for responses that promote, protect, and care for children’s mental health, investment remains negligible”.<sup>22</sup>

Most health professionals now agree that mental and physical health are inseparable, and are also entwined with the social determinants of health.<sup>16,19,21,23,24</sup> The way that people think about mental health differs around the world. It also differs according to whether they live with someone who has a mental health condition of one type or another, or who has a family member with this experience. Yet the salience of connections between people and within families, communities, and societies is a common feature. Some Indigenous views of social and emotional wellbeing emphasise the connections between people and with the land or country that they inhabit, encompassing mental, physical, cultural, and spiritual health.<sup>25</sup>

Poor mental health is strongly linked with social disadvantage, as well as historical and intergenerational trauma and racism. At the personal level, poverty, childhood adversity, and gender violence and discrimination are major risk factors for mental and substance use disorders, interacting across the life course with each person’s inherited constitution.<sup>19</sup> These disorders are a leading cause of disease burden worldwide.<sup>26</sup> The evidence-based mutual benefits of preventing, treating, and caring for both mental and physical health conditions in populations at risk of experiencing these comorbidities are now well recognised.<sup>18</sup> Equally well recognised is the importance of intervening in childhood and adolescence, when disorders that account for most of the global burden of

mental ill-health have their onset.<sup>19</sup> Addressing trauma and associated mental health problems is increasingly understood as being important for the effective delivery of health and welfare services, for working in schools and criminal justice systems,<sup>15</sup> and in community responses to public health guidance. Nonetheless, mental health expenditure now accounts, on average, for less than 2% of government budgets for health, and has never accounted for more than 1% of global development assistance for health.<sup>27</sup> Global mental health research funding comprises 4% of total health research funding, very little of which supports either work in low-income and middle-income countries or for the evaluation of public health interventions.<sup>28</sup>

The COVID-19 pandemic highlights the importance of the social determinants for both mental and physical ill-health. The pandemic has also increased social inequities and adversities across the world. In a vicious cycle, the pandemic differentially affects people in socially and economically deprived populations, with higher infection and mortality rates, as well as in those with pre-existing mental and physical disorders. The concept of syndemics has been invoked. This framework goes beyond comorbidity to consider how illnesses interact within their wider environmental context, along with social and political factors, to worsen health and social outcomes.<sup>14</sup> As the recognition that mental health is integral to both health and social development grows, global action on mental health can be seen as a prerequisite for meeting the sustainable development goals.<sup>19,29</sup>

The fields of public health and mental health are coming together at long last. They remained alienated through much of the past century despite notable work pre-dating (moral treatment) and during that period (from Adolf Meyer's concept of psychobiology onwards) that seeded the ideas that are now gaining traction.<sup>23,30,31</sup> It is crucial in the current ferment for practitioners, researchers, and policy makers from these fields to unite. They need to work together with people with lived experience of mental health conditions and their families<sup>32</sup> to make mental health a central concern in health and social policy and practice and to evaluate the mutual benefits.

Mutual benefits are anticipated when mental health is integrated in health policies and practice,<sup>18</sup> and when mental health is considered in the planning and work of education, family welfare, workplaces, urban planning, social justice, and other sectors.<sup>33</sup> For example, attention to mental health in schools brings the possibility of better educational achievement, lower levels of disruptive behaviour, and better mental health.<sup>34</sup> Community development that focuses on reducing delinquency and violence in cities has resulted in reduced spending on jails.<sup>35</sup> Training peer facilitators of community groups in rural villages in south Asia and Africa resulted in major improvements in the survival and health of mothers and

neonates,<sup>36</sup> and a peer-delivered psychological intervention (the thinking healthy programme) in India and Pakistan reduced the risks of perinatal depression.<sup>37</sup>

Success in this work depends on community support and the partnerships that are essential for implementation, as in all public health work,<sup>38</sup> which is based, in turn, on people appreciating the value of mental health and the possibilities for improving it. Our growing experience with digital technologies opens possibilities for extending the reach of professional and peer support.<sup>19</sup> Building predictive models to steer policy, combining economic, social, and medical data to forecast need and design policies and services, is becoming a possibility.<sup>39</sup> People in different places learn from each other (Zimbabwe and New York—friendship bench) and the field of public health and mental health converge to build back fairer.<sup>40</sup>

Including mental health in public health and social policy and practice is essential for the future of those who live with mental ill-health in all its forms, as well as for the national recovery from the pandemic and beyond. Worldviews on climate change and macroeconomic policy can change during a pandemic, and the next is mental health.

#### Contributors

MM wrote the lecture titled The COVID-19 pandemic: the world's wake-up call to invest in equity and preparedness for sustainable development. GFG wrote the lecture titled Science-based, public-involved, and swift administration strategy for future pandemic preparedness. HH wrote the lecture titled Will COVID-19 finally change worldviews on mental health?

#### Declaration of interests

HH received fees from the WHO Western Pacific regional office as an advisor, received support for attending World Psychiatric Association meetings, and was president of the World Psychiatric Association between 2017 and 2020. All other authors declare no competing interests.

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