JST PRESTO(Sakigake) Pandemic Resilience and Tohoku University SOKAP-Connect TUPReP Joint International Symposium

"The East-West Divide in COVID-19 Mortality: Lessons for Future Pandemics"

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Table of Contents

- Introduction
- Keynote Lecture 1
- Keynote Lecture 2
- Lecture 1
- Lecture 2
- Lecture 3
- Panel Discussion

Introduction

COVID-19 has had a devastating impact worldwide. However, COVID-19 mortality rates were significantly different between countries. Mortality rates tended to be lower in Asian countries compared to Western countries, especially the US and European nations. Various factors are considered to have given rise to such differences between Eastern and Western countries, but the exact reasons are still unknown. The identification of such factors is crucial to prepare for future pandemics. For this reason, the Japan Science and Technology Agency (JST) and Tohoku University organized a joint international symposium to discuss COVID-19 responses in Eastern and Western countries from a variety of perspectives.

Keynote Lecture 1

"The East-West Divide in COVID-19 Response" Dean T Jamison Institute for Global Health Sciences, University of California, San Francisco

Dean T Jamison is a professor emeritus in the Institute for Global Health Sciences at the University of California, San Francisco. He is a member of the Academy of Medicine of the US National Academies of Science, Engineering and Medicine. In this talk, Dr. Jamison described key factors that led to massive differences in COVID-19 mortality between Eastern and Western countries during the first year of the pandemic.

Dr. Jamison first provided a summary of his 2021 paper, "The East-West Divide." After providing a broad overview of his initial 2021 findings --which were based on reported deaths from COVID-19-- he then revisited the topic by asking if the narrative of a significant East-West divide holds true when considering underreporting of COVID-19 deaths.

Dr. Jamison began his talk by defining the "East-West divide" in reported COVID-19 deaths during the first year of the pandemic and explaining the main factors that contributed to such a stark difference in mortality. Dr. Jamison emphasized that there are limitations to grouping together diverse countries under the labels "East" and "West," but it is necessary to elucidate the story of the East-West divide.

He defined the East as the 15 countries in East Asia and Oceania that are members of the Regional Comprehensive Economic Partnership, RCEP (Australia, Brunei, Cambodia, China, Indonesia, Japan, the Republic of Korea, Laos, Malaysia, Myanmar, New Zealand, Philippines, Singapore, Thailand, and Vietnam). He defined the West as the United States plus the five most populous countries of Western Europe (France, Germany, Italy, Spain, and the United Kingdom).

During the first year of the pandemic, Eastern countries saw significantly lower rates of mortality due to COVID-19 relative to Western countries. After providing an overview of differences in mortality, Dr. Jamison explained how this can primarily be attributed to Western countries' failure to take early action and isolate infectious individuals.

Failure of Early action

In late January 2020, the Lancet published a series of papers from scientists in China warning the world that COVID-19 featured a high mutation rate, could become more efficiently transmitted from personto-person, and result in a sustained epidemic or pandemic. The alarm bells were sounded. Dr. Jamison explained that after the world was warned, Eastern countries chose to rapidly implement nonpharmaceutical public health interventions, such as border closures, whereas Western countries, such as the United States, chose inaction. Dr. Jamison labeled this "The Lost February. This led to a sharp divide between the East and West. In April 2021, just weeks after the first lockdown in Wuhan, daily causes surged to the thousands in Europe and the US, whereas most RCEP countries were only reporting at most a few hundred.

Isolation

Dr. Jamison then went on to explain that differences in isolation protocols widened the magnitude of the East-West divide. Most European countries in the East chose to isolate infectious individuals, whereas public health leadership viewed isolation as impossible in the United States. As the pandemic progressed, RCEP countries focused on widespread testing and targeted isolation programs, at times providing economic incentives or institutional isolation to ensure people had the means to isolate. Western governments chose to implement unpopular population-wide stay-at-home orders, closed schools and business, and mask-wearing. However, they did not implement isolation programs. Neither did they provide economic incentives to separate infected individuals. Some US public health officials deemed isolation "impossible" because the American public would never accept isolation policies.

Dr. Jamison then concluded that at the time of the publication of his paper in 2021, he believed that failures in the West could result in new, more virulent strains, resulting in new pandemics. He also concluded that immunization success in the global north could replace the East-West divide with a North-South divide. The past two years have shown the emergence of the North-South divide.

During the second half of his presentation, Dr. Jaimeson sought to answer if his initial conclusions about an East-West divide could still stand if he were to take into account underreporting deaths from COVID-19. Quality of COVID-19 related death reporting varies widely across countries. There was substantial underreporting in some Western countries. By comparing p-scores (the magnitude of excess deaths), he found that although there were more excess deaths in Western countries than in most Eastern countries throughout 2020 and 2021, the difference in mortality was less than when solely examining reported deaths.

Dr. Jamison stated that this makes the ratio of East to West substantially less favorable than the 2021 paper and the initial conclusions in the 2021 paper were too strong. Although this weakens their initial conclusions, he concludes that the conclusions still stand because the ratio of differences in mortality are so wide. Even when considering underreporting, the East-West divide still persists.

Dr. Jamison ended his talk by proposing two concluding thoughts to the audience. The East-West divide was attenuated by the introduction of vaccines and more transmissible variants. Eastern countries found early success with large social measures such as masking and lockdowns during the first year, but perhaps they could not have been expected to work as well at reducing spread when the virus evolved, and more transmissible variants emerged.

Secondly, The United States and other Western countries have already forgotten about COVID-19 pandemic and fallen into a cycle of neglect. The country is not prepared for the next pandemic. What's the best way for policymakers and advisors to react if a pandemic were to suddenly hit an unprepared country? Essentially, how do you prepare a country to be unprepared?

Keynote Lecture 2

"COVID-19 Pandemic Response in the United Kingdom and Asian Countries" Julian Tang

Department of Respiratory Sciences, University of Leicester, UK

Dr. Julian Tang provided the second Keynote Lecture. Dr. Tang is a professor of Respiratory Sciences at the University of Leicester. In his presentation, he reflected on the COVID-19 pandemic response of the UK and Asian countries in 2020—the first year of the pandemic—focusing on the potential impact of cultural differences on the COVID-19 experiences of the UK and Japan.

The COVID-19 Experience in the UK

Dr. Tang explained that the UK experienced a high death toll and a series of "boom-and-bust," as represented by the "Eat Out to Help Out" campaign followed by a national lockdown. He reflected on four main contributors to the high COVID-19 mortality in the UK. The first reason was the overconfidence and a dismissive attitude towards COVID-19 at the initial stage of the pandemic, highlighting that the failure in the UK's initial pandemic response likely worsened their pandemic outcome. Secondly, Dr. Tang mentioned that the NHS healthcare service was overstretched and underfunded in the area of acute infectious diseases, which led to their failure in effective pandemic response. The final two reasons were cultural: the refusal to learn from other countries—especially from formerly colonized nations—and the high level of individualism, which led to the refusal to accept the aerosol transmission of COVID-19 until the later stages of the pandemic. Dr. Tang stressed the importance of the initial pandemic response, which the British government failed to succeed at due to their prioritization of the economy, leading to an unstable pandemic response.

After providing an overview of the UK's COVID-19 experience, Dr. Tang presented four pandemic lessons for the UK. He first identified that the UK took excessive time attempting to model COVID-19, which resulted in inadequate early action. Another point he made was that the UK did not test for, nor trace

COVID-19 cases enough. As part of preparing for future pandemics, he also pointed out the necessity for better integration between testing/tracing and primary/public health teams, and enforcement of isolation.

The COVID-19 Experience of Asian Countries

Following the UK's COVID-19 experience, Dr. Tang presented on the pandemic experience among Asian countries, especially Japan. In contrast to the UK, a similarity many Asian countries shared was high mask compliance and rapid testing, contact tracing, and isolation/quarantine, which prevented national lockdowns. Another key similarity among Asian countries—especially Taiwan, South Korea, and Hong Kong that experienced SARS—was that they took intrusive measures at the early stage of the pandemic.

While not as intrusive as other Asian countries, Japan also took quick measures at the earliest stage of the pandemic, as represented by the "3 Cs" warning from the governmental COVID-19 task force. Dr. Tang also highlighted that Japan was unique in that it adopted more voluntary measures, including masking and self-quarantine, rather than placing mandates. In his view, those results came from the Japanese tradition of being polite and considerate.

However, Dr. Tang underscored that while the daily total confirmed COVID-19 cases per capita was relatively low in Japan at the beginning of the pandemic, towards the end of 2020, it had the greatest number of cases per capita among the East Asian countries, although their overall deaths remained low. He mentioned that governmental mandates may have reduced COVID-19 cases in Japan, but questioned whether governmental mandates could have been effective for the Japanese.

East-West Comparison of COVID-19 Response

Finally, using Hoftede's cultural dimensions, Dr. Tang provided an overall comparison of Eastern and Western countries that led to their differences in pandemic response. Some key cultural aspects of Eastern countries, compared to the West, include greater power distance between authoritative figures and citizens; smaller degree of individualism and indulgence; greater tendency to avoid uncertainty; and higher preference for long-term orientation. He also pointed out that the West tended to have a higher vaccination rate given higher cases and death rates, while vaccine rollout was slower among Eastern countries due to socio-cultural reasons. Dr. Tang concluded by urging Western and Eastern nations to learn from each other to better prepare for and manage future pandemics.

Lecture 1

"Cultural Aspects of COVID-19 Response in Japan" Hiroo Sato Graduate School of Arts and Letters, Tohoku University, Japan

Following Dr. Tang, Dr. Hiroo Sato, a professor at the Graduate School of Arts and Letters at Tohoku University provided insight into how Japanese culture, in comparison to Western culture, has influenced Japan's COVID-19 pandemic response.

The Japanese Worldview

A unique tradition that has pervaded Japan is the memorialization of non-human beings to honor and comfort the spirit of those entities, treating them as if they were humans. Some examples of monuments include "草木供養塔 Somoku Kuyo-tou" ("Pagoda for the Memorial of Plants and Trees")

and monuments in medical departments/labs for laboratory animals. Underlying this tradition is the long-existing worldview, also seen in other ancient societies, that both humans and non-humans are integral parts of this world.

Differences in the Japanese and Western Worldview: "Philosophy of Relationship" and "Philosophy of Subjectivity"

While Japanese to this day still tend to believe that humans and non-humans are in continuity, Western countries tend to not. The wave of modernization from European countries resulted in a movement to banish non-humans entities, including the dead, from society and to perceive alive humans—created by God—as privileged beings created by God. People have ranked entities in this world according to their distance from God, with humans being the closest to God.

Dr. Sato pointed out that the difference in the Western and Japanese worldviews towards entities in this world has impacted the philosophical and ethical proposition of how humans should live. He summarized that the Western world is based on the "Philosophy of Subjectivity," while Japan values the "Philosophy of Relationship."

With the understanding that humans are the sole living things endowed with "reason," Western nations have believed that humans can solve all issues in this world. This belief gave rise to anthropocentric thought and individualistic behavior. On the contrary, believing in the coexistence of different entities, the keyword for the Japanese was "relationship": to live in harmony with other entities in this world. Under the "Philosophy of Relationship," natural disasters and epidemics were simply a result of the disturbance in the harmony of all things. This philosophy likely led to the prevalence of collectivism in Japan.

Finally, Dr. Sato highlighted that the fundamental, cultural reason behind Japan's low COVID-19 mortality was the Japanese attitude towards the virus; to listen to their voices to restore a harmonious relationship. He concluded that while the "Philosophy of Subjectivity" of Western modernity has played a significant role in establishing human rights and modern societies, people must not forget to "listen" to the voices of non-human beings, who may from time to time present important warning signs.

Lecture 2

"Factors for low mortality impact of COVID-19 in Japan and Asia" Hitoshi Oshitani

Professor, Department of Virology, Graduate School of Medicine, Tohoku University, Japan

Dr. Hitoshi Oshitani started his lecture by noting that his role was to provide an overview of the Japanese COVID-19 experience, focusing on Japan's low mortality rate especially during the first phase of the pandemic, despite Japan being the world's fastest aging country.

Pandemic Response Strategies and Intervention Methods among Eastern Countries

He first introduced three potential pandemic response strategies: "do nothing," "containment," and "mitigation." Countries typically adopted the containment strategy. For example, China decided to contain the virus given the first wave of COVID-19 and followed their containment policy for about three years. On the other hand, instead of adopting one of the three main conventional strategic options for

pandemic response, the Japanese government chose "suppression": suppressing viral transmission as much as possible while maintaining socioeconomic activities.

He then provided an overview of two main types of interventions for pandemics: pharmaceutical and non-pharmaceutical intervention. Pharmaceutical interventions include diagnostics, therapeutics, and vaccines. Diagnostics and therapeutics are typically adopted from the early response phase of a pandemic, while vaccines appear during the mid-term response. Non-pharmaceutical interventions, i.e., public health and social measures, include personal protective measures and environmental measures that are adopted during all phases of the pandemic. Additionally, there are targeted response measures, community-wide response measures, and travel-related response measures taken especially during the early and mid-term response phase of a pandemic.

Dr. Oshitani compared Japan with other Asian countries regarding their public health system prior to COVID-19. Speaking from his experience containing the 2003 SARS epidemic, within six months after its recognition as a regional advisor of the WHO's Western Pacific Regional Office back then, he noted that while affected countries such as China, Taiwan, and Hong Kong changed their public health system for infectious diseases (i.e., non-pharmaceutical interventions), Japan did not as there was no SARS outbreak. Reflecting on the 2003 SARS containment, he warned that there is a chance that future pandemics could take on a remarkably different character than prior ones; the COVID-19 pandemic was no exception.

Comparing the Japanese COVID-19 Response and Experience with other Eastern/Western Countries Following the discussion of public health systems, Dr. Oshitani compared the Japanese vaccine coverage and confirmed COVID-19 deaths per one million population with other Eastern and Western countries. He noted that vaccine rollout was initially slow in Japan compared to the US/UK, but the final vaccine coverage was higher. He also pointed out the significance of achieving high vaccine coverage. He alluded to the fact that the low vaccine coverage among elderly people in Hong Kong led to a spike in deaths in early 2022, given their successful COVID-19 containment in the early phase of the pandemic. Similarly, South Korea experienced a spike in deaths in early 2022 after relaxing its pandemic policies.

Dr. Oshitani highlighted differences in pandemic response at the initial stage of the pandemic, especially between Japan and Western countries. He reflected that Japan recognized the significance of superspreading events in early 2020 and underscored that it realized and accepted that COVID-19 spread via aerosol transmission. Referring to "Lessons from the COVID WAR " by the COVID Crisis Group, he underscored that the Japanese government willingly made proclamations regarding aerosol transmission based on available infection data, despite the lack of indisputable evidence for it. This recognition led to the development of the "3Cs" concept (avoid closed spaces, crowded spaces, and close-contact settings). On the other hand, European countries and the US tended to have opportunistic views, persuading citizens that the virus had low risks, did not spread via aerosol transmission, and encouraged people to maintain their socioeconomic activities.

Furthermore, Dr. Oshitani mentioned that a significant difference between Japan and Western countries that affected their initial pandemic outcomes was the level of contact tracing. He mentioned that especially in the rural areas of Japan, retrospective contact tracing was highly comprehensive until the Delta variant spread. He highlighted that, unlike Japan, there were very few well-trained contact tracers in Western countries including the US and the UK.

Another difference that Dr. Oshitani pointed out was that the stringency index of Japan was lower than other countries because the national government did not enforce policies on the Japanese. He analyzed that given that the Japanese trust in their government is low, had the Japanese government implemented mandates, people may have opposed and rebelled, leading to worse outcomes. Referring to the "Swiss Cheese model" analogy by Eric Topol (Physician-Scientist, Professor, Scripps Research Institute), Dr. Oshitani mentioned that despite no governmental mandates in Japan, the Japanese had multiple layers of personal protective behaviors—including voluntary masking, vaccination, and refraining from traveling—that prevented COVID-19 deaths.

The Sociocultural Background Behind the Japanese COVID-19 Response

Dr. Oshitani also presented the sociocultural aspects of Japan's COVID-19 response. He mentioned the role peer pressure and prosocial behavior had in restricting behaviors at the individual level was notable, although it gave rise to other concerns, including discrimination. He also pointed out differences in the attitude towards COVID-19 between Japan and other countries: Japan decided to develop strategies based on the idea of "living with COVID-19," while other countries tended to "fight against COVID-19." He also alluded to Ezekiel Emanuel's (Professor, University of Pennsylvania) analysis of the difference in tolerance levels to COVID-19 between countries. The US and the UK's tolerance levels increased dramatically in early 2020 after they experienced high death tolls in the first wave. However, Japan could not tolerate even a single death in the initial stage of the pandemic. This difference in tolerance level likely impacted the protective behaviors of individuals. This difference in tolerance level likely affected the behaviors of individuals during the pandemic.

Dr. Oshitani concluded by warning that with time, tolerance levels tend to continuously increase, and people tend to forget the pandemic. He called out for the need to remind people of the devastating pandemic experience to prevent future pandemics.

Lecture 3

"Prosocial Behavior During the COVID-19 Pandemic" Akihiro Nishi Sakigake Fellow

Dr. Nishi is an Associate Professor within the Department of Epidemiology at the UCLA Fielding School of Public Health and a Sakigake Fellow. Dr. Nishi used his time to answer a few key questions regarding prosociality.

Question 1: Do pandemic-related behaviors have things in common from the behavior science perspective?

Yes. Dr. Nishi explained that behaviors people take to prevent COVID-19, such as wearing masks overlap with the thinking behind behaviors people take to prevent HIV/AIDS. In both cases, people take action to protect themselves and others.

Question 2: What is prosocial behavior?

Drawing from Hans-Weirner Bernoff's definition, Dr. Nishi defines prosocial behavior as the acts of helping that are not motivated by professional obligation. This includes both altruistic behavior, such as charitable donations, and egoistic altruistic behavior in which people help others expecting to be helped in return, e.g. "I'll help you this time, so you help me next time."

Question 3: Are there overlapping concepts?

Yes, this overlaps with the concept of cooperation in evolutionary biology and the concept of social support. It overlaps with economics as well.

Question 4: Why is prosocial behavior difficult to evolve? (especially in one-shot interactions?)

Drawing a parallel from the Prisoner's Dilemma and Public Goods game from economics, Dr. Nishi explains that if someone does not know if their opponent will choose to help them, they will either benefit or remain unchanged if they choose to not help the other. If they chose to help the other, and the opponent chooses to help them it will result in a "win-win" scenario, but they are at risk of suffering a loss in the event their opponent chooses not to help them. Although it's best if all participants choose to help one other—a prosocial action—helping comes with inherent risk.

Question 5: What are the known methods to promote prosocial behavior during pandemics?

Dr. Nishi identified three known methods. Method 1: Financial incentives, such as governments paying people when they get vaccinated. Method 2: Ordering people to adopt prosocial behavior through methods such as stay-at-home orders. Method 3: Penalties, such as when the State of Maryland states that violating stay-at-home orders might result in a fine or imprisonment. Method 4: guaranteeing that people repeatedly interact long-term with those they need to help and rely on. Method 5: Using language to cooperate, such as "I got vaccinated!" stickers. Dr. Nishi also mentioned that some research suggests that study participants are more likely to act altruistically when they are forced to decide under time pressure.

Conclusion:

Dr. Nishi advocated that going forward, when we discuss enhancing prosociality in pandemic preparedness, we must confirm the definition of prosociality and which specific actions we want to promote. This will help avoid confusion and make the direction of discussions clearer. Secondly, we should be creative when planning interventions and consider mixing the above methods to enhance prosocial behaviors in our population of interest.

Panel Discussion: Preparing for Future Pandemics

Facilitator: Emerald O'Brien (TUPReP)

Panelists:

Prof. Dean Jamison, Prof. Julian Tang, Prof. Hiroo Sato, Prof. Hitoshi Oshitani, Dr. Akihiko Nishi, Dr. Shuhei Nomura (Keio University/Sakigake Fellow)

Dr. Akira Endo (National University of Singapore Nagasaki University/Sakigake Fellow) Dr. Daisuke Yoneoka (National Institute of Infectious Disease · Tokyo University/Sakigake Fellow)

To conclude the symposium, the panelists gathered for a round-table discussion to discuss how to best prepare for future pandemics. The discussion was broken into several main themes.

1. Introduction of the Sakigake fellows. What are their thoughts on the East-West Divide?

- 2. The uniqueness of Japan's response: Could you comment on how best Japan's unique response to COVID-19 could contribute to improving global pandemic preparedness, prevention, and response?
- 3. Overcoming East-West differences: The US and the UK are leading the development of the pandemic treaty with little input from East Asian countries who fared significantly better. Based on the discussions today, it seems like the US, UK, and other Western countries can learn from Eastern countries, but they are reluctant to listen to former colonies and East Asian countries. How can we overcome these differences?
- 4. Economic aspects of the pandemic.

Introduction of the Sakigake Fellows

Dr. Shuhei Nomura was the first to introduce himself. He is an associate professor at Keio University and a biostatistician who works primarily in global health policy. He also leads a team at the National Institute of Infectious Diseases that monitors excess mortality due to COVID-19 in Japan. According to Dr. Nomura, differences in COVID-19 management and outcomes can be viewed in three ways. The first is through a sociological perspective. One of the key drivers of low COVID-19 transmission is how well people can adhere to behavioral restrictions, such as mask-wearing. There was significantly greater adherence to mask-wearing in Japan and other East Asian countries than in the US and UK. The second is that more people accepted two doses of the COVID-19 vaccine in countries like Singapore than in the US. The third is the fact that cardiovascular diseases, high BMI, and obesity —which are risk factors for higher COVID-19 case fatality—tend to be much lower in countries such as Japan than countries such as the UK and UK.

Dr. Daisuke Yoneoka, chief of the statistical unit at the National Institute of Infectious Diseases, was the second Sakigake fellow to introduce himself. The goal of his Sakigake project is to create a new statistical method for disease surveillance data during pandemics that will correct for biases in the current system.

In his opinion. Based on his research on excess mortality, he stated that in his opinion, it is too early to discuss the determinants of disparate COVID-19 mortality between countries because there is currently no consensus on excess mortality models and results. For example, the WHO used a different algorithm to estimate excess mortality than his team within the National Institute of Infectious Diseases.

The third fellow, Akira Endo, is an infectious disease modeler and assistant professor at the National University of Singapore who works to estimate the heterogeneity in transmission COVID-19 transmission dynamics. He stated that it matters how we define the timeline of and degree of COVID-19 "success," as different countries were better able to manage COVID-19 at different points (i.e.: many eastern countries managed the first wave better, but the US and many western countries distributed vaccines earlier). Additionally, the pandemic is not over and there will be future trends worth paying attention to.

The uniqueness of Japan's response: Could you comment on how best Japan's unique response to COVID-19 could contribute to improving global pandemic preparedness, prevention, and response?

Dr. Jamison explained that during the earliest days of a pandemic, there is limited information, but early action is critical. Japanese scientists were willing to make rapid judgments and recommendations to policymakers on what to do based on the limited data available. On the other hand, the US CDC

demanded standards of evidence for action that were so high, the consequence was inaction. That difference in "Scientific culture" facilitated a quicker response in Japan.

Dr. Oshitani then added his personal experience of providing recommendations to the Japanese government during the first weeks of the pandemic. It is easier to make policy decisions based on rapidly acquired data in Japan versus local data in the US because highly qualified workers at local Japanese public health centers conduct "on the ground" contact tracing and produce robust data. Although this data was limited, he could reliably extract key information to rapidly inform policymakers. The US has many highly qualified epidemiologists at the national- state-level but contact tracers at the community level do not have the same degree of expertise, so their data is less robust and difficult to draw policy decisions from.

Dr. Nomura commented that although the Japanese government can also be conservative, they are very active when evidence is strong. Japan started the initial vaccination nearly 6 months after the UK. They waited to see real-world effectiveness, but then sprang into action once that data was available. During the vaccine rollout, the mass media updated the public every day on vaccine information ranging from coverage rates to potential side effects. Experts and data scientists also routinely appeared in vaccinepromoting campaigns.

Overcoming East-West differences

When asked about how to overcome the East-West divide, the conversation pivoted towards the need to define and understand the divide through data. If we think a central policy question is to understand the lessons of COVID-19 and other pandemics we've dealt with in the past century, then measurements such as excess mortality are important. It is also important to consider the timeline and what events might have influenced an early response, such as the highly publicized Diamond Princess cruise ship outbreak in Japan that encouraged the Japanese government to act earlier when there were only 10-100 cases per week.

Excess mortality is a promising metric that can help the global community quantify and understand the East-West divide.

The consensus amongst the panelists was that excess mortality estimates, alongside assessing economic impacts of the pandemic in different countries is a good place to start when assessing how countries have fared. It can also provide insights into health disparities and their determinants between different groups in the same country. Dr. Nomura pointed out that during the pandemic, women showed excess mortality for suicide, while men did not. A major factor was likely economic impact, such as job continuity.

Expanding into lessons from economics:

A member of the audience proposed three interesting questions on the relationship between economics and the East-West divide. What role did economics play in the response between the response in the West and East Asia? How did economics and political structure affect response? What should leaders in economically fragile countries prioritize when it comes to pandemic preparedness and response?

According to Dr. Jamison, we must consider three economic issues. economic freedom, economic security, and economic incentives. In the US, all three played important roles. Economic freedom: you should keep your business open if you want to without regard to others. In some regions of the US, this strong belief in economic freedom played a role in slowing down public health response. Secondly, the US government did relatively well in protecting people from the economic impacts of the pandemic. The

US and much of the West have done very badly in creating adequate economic incentives for isolating infected individuals. We must provide options and economic incentives for people to take those options.

It is far more dangerous to deprive people of their economic livelihoods in economically fragile environments. For example, India imposed large lockdowns months before COVID-19 was reported in their country, which resulted in huge suffering and loss of life. More so than leaders in high-income countries, leaders in low-income countries must heavily consider the tradeoffs between allowing lowincome people to provide for themselves and preventing infection.

Concluding notes from Dr. Oshitani

Dr. Oshitani proposed the caveat that no country was prepared for COVID-19, no single country responded to COVID-19 perfectly, nor can we be completely well prepared for the next pandemic. For example, Japan has excess mortality for suicide and China suffered huge economic and social losses under the "ZERO-COVID" policy. Even culture cannot be taken for granted. As Prof. Sato mentioned, the sense of national identity in Japan has been eroding since the end of WWII and should be prepared for a less-collectivist-Japan in future pandemics. However, rapid initial response that is then adjusted using scientific judgment is key to lowering overall mortality as shown in Japan and other Eastern countries.

His concern now is that almost all the post-COVID discussions are led by Western countries who are focusing on vaccines over non-pharmaceutical interventions that can be implemented during the initial response. Yes, we need a 100-day mission, but we must have multiple layers to our defense mechanism, including a robust data-sharing system that can facilitate early response.

We need to have multiple layers of defense, and we cannot rely on vaccines alone. For the next pandemic, we may not even be able to develop vaccines, so containment and public health must take priority. Vaccine development is attractive for politicians in Western countries and Western countries tend to rely on technological advancement to improve health. This is reflected in predominantly Western-led initiatives, such as the pandemic treaty and 100-day mission. Currently, the pandemic treaty says very little about non-pharmaceutical interventions. This is dangerous, and we must invest in public health response, spillover prevention, and biosafety and biosecurity.

The Japan must have some role in improving global resilience to pandemics. People are beginning to forget the pandemic, but we must not forget. We need more resilient systems. In collaboration with Sakigake and SOKAP-connect, we need to disseminate this kind of information to people in other countries. With globalization, rapid population growth, and rapid economic development and environmental degradation, pandemic risk is higher than ever. Right now, global activities are almost exclusively on vaccine development, which is quite risky. We must also invest in public health and social measures. No country was perfect, but countries in the East have some important lessons that the global community can learn from understanding how Eastern countries implemented these kinds of measures. We can help other countries develop their own strategies.