

Article

# Examining the Impacts of Coronavirus Disease 2019 Mitigation Policies on Health Outcomes of Older Adults: Lessons Learned From Six High-Income or Middle-Income Countries

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Received: June 29, 2022; Editorial Decision Date: August 15, 2022

**Decision Editor:** Brian Kaskie, PhD, FGSA

**Keywords:** COVID-19 mitigation and control, Global COVID-19 response, COVID-19 mortality, policy, COVID-19 vaccinations

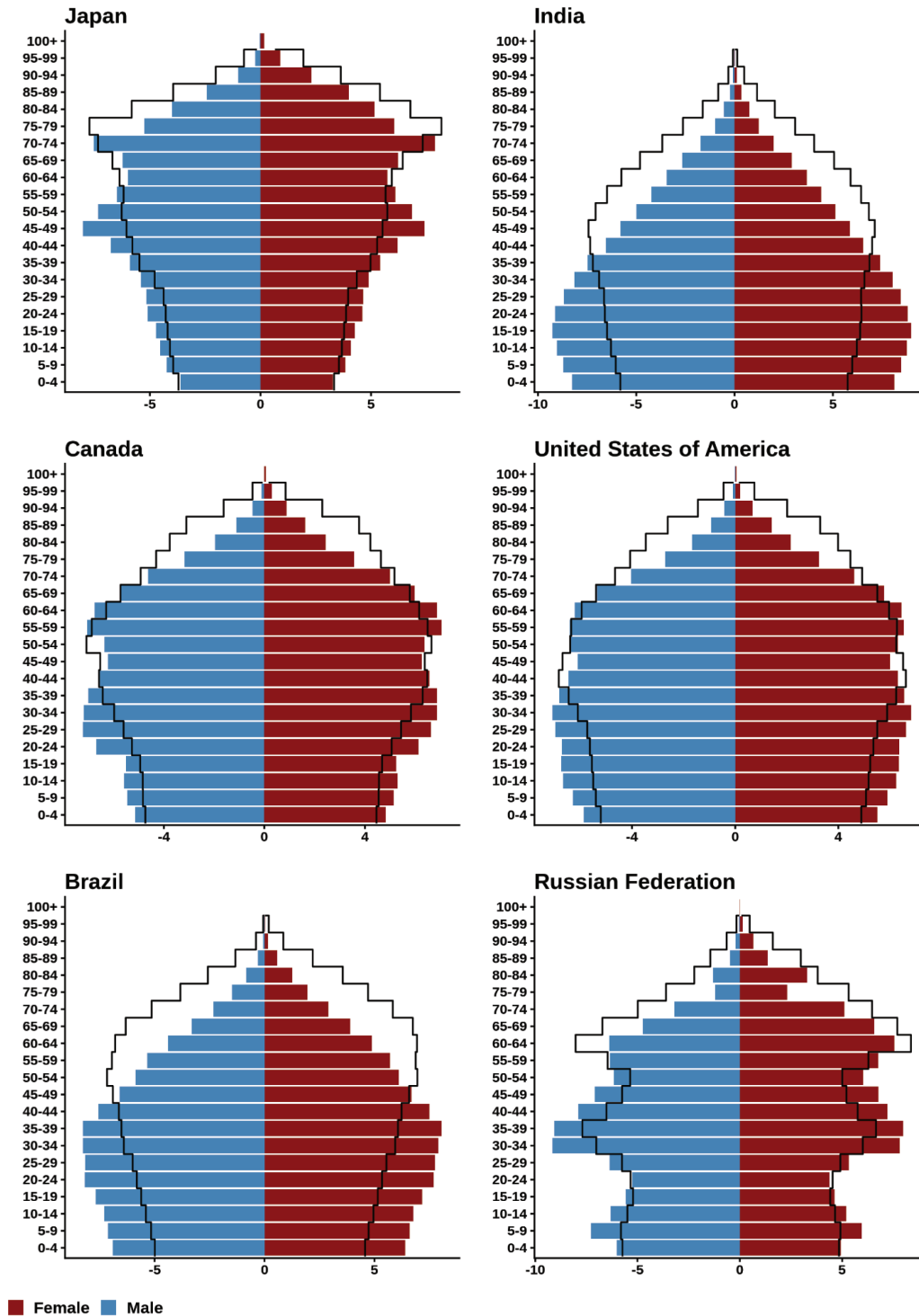
Exposures to severe acute respiratory syndrome coronavirus 2 differentially impacted the risks of coronavirus disease 2019 (COVID-19) by age and by country. Regardless of the country, older adults aged 60 years or older with or without comorbidities were at higher risk of developing severe symptoms, being hospitalized, and dying from COVID-19 (Meftahi et al., 2020; Perrotta et al., 2020; Wortham et al., 2020; Yanez et al., 2020). Higher COVID-19 death counts were observed consistently among older adults in comparison to younger adults across high-income

and middle-income countries, with large variations for absolute reported death counts (United Nations, 2020). In the United States, deaths surpassed one million, whereas in Japan the death count has been at least 31,466 as of July 13, 2022. (Statista, 2022).

There were considerable differences in COVID-19 mitigation and control policies in countries that used a centralized, top-down approach (e.g., Japan, India) versus those that used a decentralized, bottom-up approach (e.g., Canada, the United States, Brazil, Russia), with unique

within-country aspects (i.e., socioeconomic, political, and cultural challenges; underlying population distributions; age structures; and male-to-female ratios) that impacted the absolute death counts (see [Figure 1](#); [Vervoort et al., 2021](#)). For example, every country had a unique health-care system and a unique public health infrastructure that

led to differences in COVID-19 local implementation responses, with some countries being more relaxed about mask mandates and restrictions. These shortcomings in policy appeared to impact the most vulnerable (i.e., older adults). Additionally, within countries, COVID-19 infections occurred in waves and manifested differently in terms



**Figure 1** Population pyramids by country for the year 2020. Percentages of people are shown on the horizontal axis and the black line is a projected median estimate for the year 2050. Sources: [United Nations, Department of Economic and Social Affairs, Population Division, 2022a, 2022b](#).

**Table 1:** Characteristics of high-income and middle-income countries and their COVID-19 policies for older adults

Country	Income/OECD classification	Population	Older adults, %	COVID-19 cases and deaths, <i>n</i>	Older adults fully vaccinated, %	Cases in older adults among cumulative cases, %	Deaths in older adults among cumulative deaths, %	Policies favorable to older adults	Policies unfavorable to older adults
Japan	High income/OECD	126 million	28.9	9.3 million cases, 31,126 deaths	80	11.7	89.2	Preexisting universal LTC and HI coverage Priority vaccination for older adults	Closure of daycare facilities during emergency declaration Policies unfavorable to older adults
India	Lower middle income/ non-OECD	1.4 billion	10.1	43 million cases, 525,047 deaths <sup>a</sup>	86.4	Reliable data not available	Reliable data not available <sup>a</sup>	Effective vaccination campaign	Self-isolation Stringent lockdown without safety net in early stages
Canada	High income/OECD	38.4 million	18.5	3.9 million cases, 41,556 deaths	>95%	17.3	92.6	Priority vaccination in some provinces Booster doses	Self-isolation LTC lockdown
United States	High income/-OECD	332 million	16.9	86 million cases, 1 million deaths	83.3	11.9	80	Physical distancing in public places Mask wearing in crowded places and indoors (e.g., grocery stores) Priority morning hours for grocery shopping for older adults living in the community	Quarantine if COVID-19 positive Restrictions in physical activity and recreation; Restriction on family visitation in nursing homes Social isolation resulted in loneliness and mental health issues
Brazil	Upper middle income	214 million	9.6	32 million cases, 670,405 deaths <sup>a</sup>	81 <sup>a</sup>	63.9	50	Massive vaccination campaign for those 60 years and older	Intensive isolation without supports in wave 1
Russia	High income/ non-OECD	144 million	15.5	18.4 million cases, 381,002 deaths	N/A	N/A	N/A <sup>a</sup>	Obligatory vaccination campaign in certain regions Self-isolation in the early stage of the pandemic	Absence of reimbursement of spending on medication for outpatient care Inconsistent policies among region Low vaccination acceptance rate No funding for rehabilitation after COVID-19

Note: COVID-19 = coronavirus disease 2019; HI = health insurance; LTC = long-term care; N/A = not available; OECD = Organisation for Economic Cooperation and Development.

Sources: Japan Ministry of Health, Labour and Welfare, 2022; Ritchie et al., 2022; Statista, 2022; Statistics Bureau of Japan, 2021; U.S. Centers of Disease Control and Prevention, 2022a, 2022b, 2022c; World Health Organization, 2022a, 2022b, 2022c; Worldometer, 2022.

<sup>a</sup>Official death statistics might be underestimations of the actual deaths in India and Russia.

of timelines, in how threat levels were perceived for older adults, and in the proportions of COVID-19 cases and deaths among older adults (see [Table 1](#)).

Consequently, there was no global systematic approach or “one size fits all” solution to contain COVID-19. As a result, a non-unified global approach to handling COVID-19 allowed different countries, provinces, and states to adopt strategies that would work best for them. Big waves of COVID-19 infections caused each location to enact their own protocols for lockdowns and quarantine when the resources of one country did not line up with those of another ([Hofman, 2020](#)). However, when cases spiked exponentially in some areas, the spike stressed the need for nationwide regulations in areas where people could transport from state to state.

As a result of the approaches and strategies adopted, some countries effectively reduced their rate of infection, while others could not. Some countries successfully implemented stringent travel restrictions or extreme shelter-in-place measures, while others struggled on multiple fronts, such as the following: a lack of consensus on mask-wearing mandates, construing social and physical distancing policies for public health good in nursing homes and in community settings as authoritarian, national opinions about data sharing and sharing of vaccine technology, sharing global supplies to manufacture vaccines, trust in science, widespread misinformation, and economics fears. While both unified and non-unified responses had pros and cons, each country’s overarching health-care policies and specific COVID-19 policies had positive and negative impacts on its older population.

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The variations in policies across countries and the varied older-adult mortality rates motivated our team of international scholars to: (a) examine the reasons for the varied COVID-19 responses across six high- and middle-income countries that adopted either a centralized approach (i.e., Japan, India) or a decentralized approach (i.e., Canada, the United States, Brazil, Russia); (b) highlight country-specific policies that were favorable and unfavorable for older-adult well-being or mortality; and (c) highlight country-specific policies that were favorable and unfavorable for vaccine uptake. In summary, we provide lessons learned and highlight recommendations to improve older-adult well-being and reduce older-adult mortality during pandemics.

## Japan

Nearly one-third (28.9%) of Japan’s population of 126 million is an older adult ([Statistics Bureau of Japan, 2021](#)).

Of the 9.2 million cases, 11.7% of cases—and within cases, nearly 90% of deaths—were among those 60 years and older, and nursing homes accounted for nearly 14% of overall COVID-19 deaths. Despite being a super-aging society, Japan had the confirmed absolute deaths and deaths per million (total) as of July 13, 2022 among the six countries we reviewed.

Early in the pandemic, Japan introduced COVID-19 control policies providing a nationwide, unified, centralized guidance for COVID-19 countermeasures. A state of emergency for the first 29 days was declared based on surveillance, medical service responses, and epidemiological evidence. Key elements of the emergency response included the following: (a) the provision and sharing of information; (b) surveillance and information gathering; and (c) pandemic prevention. These measures were successful in reducing rate of new and cumulative cases to 0.5 infections per 100,000 early in the pandemic, i.e., by 26 May, 2020. The current infection rate of 47 per 100,000 as of September 24, 2022 remains low but higher than what it was in 2020. Additionally, favorable policies, such as stay-home “requests”; the closure of facilities, including restaurants; access to polymerase chain reaction tests; online support services; and requisitions of land or buildings for medical purposes, were instrumental in controlling the viral spread. However, unfavorable policies, such as the closure of adult day care centers and lockdowns of recreational and gathering facilities by the government early in the pandemic, likely increased social isolation among older adults. Nevertheless, the lockdown was perhaps instrumental in keeping the burden of mortality low among older adults. Next to health-care workers, older adults  $\geq 65$  years were prioritized for a massive vaccination program, both among those in the community and those institutionalized, with implementation of vaccines for older adults accomplished in four months ([Abe & Kawachi, 2021](#)). In Japan, the preexisting universal health coverage since 1961 and the universal long-term care (LTC) insurance coverage since 2000 served older adults well throughout the COVID-19 pandemic; these programs helped to cover a range of pandemic-associated treatments and rehabilitation and to implement an effective vaccination program ([Alencar et al., 2021](#); [Health and Welfare Bureau for the Elderly, 2016](#); [Japan Health Policy NOW, n.d.](#)).

## India

India, with a population of 1.4 billion, had 43 million COVID-19 cases and 525,825 deaths, which were grossly undercounted but led to India ranking second in the number of COVID-19 cases, after the United States ([Goldstein & Lee, 2020](#); [Ministry of Health and Family Welfare, 2022](#)). In India, 9% of the population (100 million adults) is over the age of 60, with half of the those in this age group in the lowest income group ([Nagarkar, 2020](#)). Despite its relatively younger population, the premature onset of chronic conditions among adults  $>45$  years is common in

India (Goli & Arokiasamy, 2013; see Figure 1). This partially shifted the share of COVID-19 mortality from older adults to younger adults ages 40 to 60 years. Additionally, undiagnosed older adults with multiple chronic conditions remained vulnerable to COVID-19 (Arokiasamy, 2018). Consequently, the age-wise COVID-19 mortality rates showed mortality among older adults >60 years to be nearly 50%, with 46% of all COVID-19 deaths in India observed among adults ages 30 to 60 years and a median age at death of 60 years.

India required a unified, national, centralized response to COVID-19, and its government was proactive in initiating a nationwide lockdown early in the pandemic. However, this stringent implementation without a safety-net provision for low-income groups and migrant workers had serious repercussions on the health of population subgroups due to food insecurity. The lockdown affected older adults, who did not receive timely health care and who were already struggling with loneliness, restricted mobility, poor health, inadequate access to medical facilities, and financial insecurity (Nagarkar, 2020). Those in rural areas were more severely affected, with loss of income due to job loss and with a lack of health coverage. In India, 6% of older adults who live alone are dependent on caregivers and helpers who visit daily (HelpAge India, 2018). The pandemic limited the movement of caregivers and increased social isolation among older adults. The second wave of the COVID-19 pandemic was fueled by mixed messaging from the government, allowing people to attend religious gatherings, political rallies, social gatherings, and weddings.

Nevertheless, the vaccination response of the government was favorable, with India counted among the few countries manufacturing its own vaccine. The government was successful in implementing a wide vaccination campaign and achieved a high vaccination rate among its population, thereby curbing the mortality rate (see Table 1). The government of India peaked the vaccine development by engaging in proactive risk financing on an enormous scale, clearing roadblocks, and strengthening the end-to-end systems in vaccine development, manufacturing, and distribution. The strategy to inoculate individuals with 30 core high-risk conditions, including prioritizing older adults, led to a reduction in mortality and to India gaining population-level immunity against the virus before further waves hit the country.

Yet, the pandemic exposed India's inadequate public health-care system and safety-net infrastructure, with wide variations across states. The varied COVID-19 responses by Indian states can perhaps be attributed to the inherent disparities in the resources devoted to their health-care delivery systems. More developed Southern states, such as Kerala and Tamil Nadu, which had better health-care infrastructures and higher literacy, reported lower mortality rates in comparison to less developed Northern states, such as Rajasthan (Ministry of Health and Welfare, 2020). The pandemic magnified the existing health-care disparities and

called for serious government action to strengthen and invest heavily in India's public health infrastructure, address inequities in health-care access, and provide timely and quality care that can equip the country better for future emergencies.

## Canada

Canada, with a population of 38.4 million, reported 3.9 million COVID-19 cases and 42,219 deaths; 18.5% of its population consisted of older adults. While the provinces in Canada implemented decentralized COVID-19 responses and strategies for pandemic containment and mitigation, there was considerable cooperation between the federal and provincial governments, with minimal political polarization. Canada's three territories and ten provinces coordinated containment, mitigation strategies, testing, and contact tracing, while the federal government secured the borders and provided support for the national stockpile of protective equipment, testing kits, and ventilators (Detsky & Bogoch, 2020). Canada closed the land border with the United States for the first time since Canada was founded, and interprovincial travel was discouraged. Canada's favorable policies to prevent widespread community transmission were consistent and characterized by partnership with citizenry, trust in science, and cooperation across levels of government (Detsky & Bogoch, 2020; Haffajee & Mello, 2020).

However, in the early stages of pandemic, due to a limited supply of vaccines, provinces differed in how they rolled out the vaccines to their older-adult populations. For example, the early and complete vaccination policy of Alberta for its older-adult population was beneficial, in contrast with the Ontario policy prolonging the interval between doses to maximize limited early supplies. Failures in effective prevention control measures and staffing led to nearly 80% of resident deaths occurring in LTC facilities in Ontario and Quebec (Detsky & Bogoch, 2020). Later in the pandemic, the favorable vaccination policy in Canada, including prioritizing vaccination and boosters for older adults, was successful in fully vaccinating over 95% of Canada's older adults.

## United States

The United States, with a population of 332 million, reported the highest number of COVID-19 cases, at 90.7 million, along with more than 1 million deaths. At least 7.4 out of 10 COVID-19 deaths occurred in adults ages  $\geq 65$  years. At least 31% of deaths occurred in LTC facilities, with high rates of COVID-19 cases and deaths in nursing homes (AARP Policy Institute, 2022; The New York Times, 2021). The decentralized public health-care system of the United States is comprised of both the federal and state governments, where the federal government plays the role of oversight and regulation, while the state and local governments,

including county governments, are in charge of implementation of the health-care policy.

Early in the pandemic, major cities in the United States were hotspots for COVID-19 outbreaks and, to control and mitigate COVID-19, states implemented varied approaches. Masks and face coverings were made mandatory in public places in certain states, while others reopened with measures continuously evolving. For community-living older adults, special, priority grocery shopping morning hours were established. Additionally, a certain degree of collective compliance in safe physical distancing measures and appropriate use of personal protective equipment was employed. However, an initial lack of accessibility to Food and Drug Administration–approved COVID-19 tests and antigen tests, the subsequent proliferation of faulty tests with poor sensitivity (later recalled by the Food and Drug Administration), and shortages of personal protective equipment in the LTC settings and in the hospitals failed to control and mitigate the viral spread. These limitations also precluded the ability to discern a denominator and led to unreliable statistics with which local officials could mandate certain public health measures. Further, compliance and surveillance data for such behavioral measures were difficult to ensure or quantify in the individualist society of the United States.

There was pushback from the younger generation and millennials, who believed if they avoided contact with older adults, they could continue on with life asymptotically (Kupferschmidt, 2020). Perhaps a non-centralized, non-unified approach and a general distrust in science and widespread misinformation contributed to the United States having the highest burden of cases and deaths among the global landscape (Table 1). However, the vaccination policy in the United States has been favorable to older adults, who were among the first groups prioritized to receive the COVID-19 vaccine and who achieved the highest vaccination rate among all age groups, which led to a reduction in COVID-19 cases, emergency department visits, and hospital admissions (Freed et al., 2021; McNamara et al., 2022).

Additionally, given that older adults were at a higher risk of COVID-19-related hospitalization and death, the LTC facilities implemented stringent restrictions limiting families and caregivers from visiting their loved ones. While these restrictions may have helped in limiting the spread of the disease, lack of contact with family members and caregivers in these settings socially isolated older adults and increased their risk for depression and other mental health issues.

## Brazil

Brazil, with a population of 214 million, reported 33.9 million cases and 674,102 deaths, and consistently ranked third in confirmed cases and second in absolute deaths worldwide, with high rates of hospitalizations and low numbers of intensive care unit beds (Marson & Ortega, 2020; Rich,

2020). The initial lack of a response to COVID-19 was based on the political leadership in power and included negligence. There was widespread disbelief in science, with support for inherited population immunity. After massive deaths, the government adopted general measures, but the country remained divided due to misinformation, fake news made implementation measures less effective, and death rates increased.

Contrary to the United States, 43% of the hospitalizations in Brazil occurred in those aged 12 to 49, with 20% in those aged  $\geq 65$  years (Teich et al., 2020). Inadequate surveillance, a lack of data on intensive care unit admissions, and various socioeconomic and political sources of turmoil exacerbated the situation (Marson, 2020). Brazil's moderately high population of older adults (9.6%) and indigenous populations with extreme socioeconomic disparities had limited access to health care and were the most vulnerable groups during the pandemic (Moreira et al., 2022). The unfavorable protective policies for older adults living independently were to self-isolate without infrastructure for well-being communication, socialization, medical supports, and access to services for physical and mental activity. In institutional settings, there was logistical chaos and care workers were not vaccinated, placing older adults at an increased risk for COVID-19. Additionally, there were long-lasting restrictions on visitations that intensively isolated older adults (Table 1).

Brazil's non-centralized response to COVID-19, which had both turbulent and successful COVID-19 phases, similar to those of India, was criticized. Without a national strategic plan, the federal government lacked policies to coordinate, promote, and finance internally sanctioned COVID-19 public health measures (Ferigato et al., 2020). It took legal action by the Brazilian Supreme Court to allow states and cities to make decisions about implementation of measures (Grin & Vargas, 2020). While the initial response was delayed, the Brazilian states managed the pandemic efficiently. Similar to India, Brazil manufactured its own vaccine, followed by a massive vaccination campaign. In the vaccination phase, the country implemented a well-structured program of distribution for the vaccines, providing an average of three doses per citizen for all age groups, including children. The favorable COVID-19 policies placed older adults aged 75 years and older in one of the priority vaccination groups early and throughout the pandemic. Adherence to vaccination was 81% among older adults, which was effective in reducing mortality (Alencar et al., 2021).

## Russia

Russia, with a population of 144 million, 15.5% of which are older adults, reported 18.1 million cases and 373,942 deaths, with possible undercounting of COVID-19 deaths. The Russian government failed to put together a centralized, unified, and well-defined federal strategy before the rapid rise in new cases. In particular, the lockdown policy

remained the responsibility of regional authorities rather than of the federal government, with a lack of coordination of restrictions (Åslund, 2020; King & Dudina, 2021). As a result, neighboring regions had different restrictions, with some places requiring a QR code to go outside. In addition, most regions tried to order a “self-isolation” regime for older adults, which was enacted with different punishments for violation. These non-unified measures resulted in low control of the viral spread and high death rates among all age groups.

The composition of the health system in Russia made health-care access difficult for most of its population, with extreme challenges to getting necessary care among older adults. Additionally, the high out-of-pocket payments for viral treatments and the subsequent rehabilitation measures were unaffordable for many. Furthermore, because medication is not included in the Russian universal health coverage, it constituted the largest part of out-of-pocket payments (Gerry et al., 2017). In Russia, the retired receive a low pension, on average \$639.60 USD per person when the average income is \$2,141 USD; this meant low-income retired persons could not afford expensive medications (Zazdravnykh et al., 2021). In addition, with Russia’s tax-funded health systems, the essential cost of getting free access to health care meant long waiting times or queues to the physician’s office, resulting also in long waiting times for those who needed emergency aids during the pandemic. Finally, the difficulties with getting access to health care and the absence of coordinated actions within the country resulted in excessive COVID-19 mortality rates (Kobak, 2021), where most of the cases were likely among the older population, though data are not available to support this.

Finally, similar to the governments of other countries, the Russian government developed its own vaccines: Sputnik V, EpiVacCorona, CoviVac, and Sputnik Light. However, it did not give permission to import internationally recognized vaccines (e.g., AstraZeneca or others). In addition, the vaccination policy was compulsory for public workers, but it was a voluntary decision for others, which included older adults. Moreover, the government did not give any priority for vaccines to the older population or those with chronic conditions. As a result, while the vaccine was free for everyone, Russia had a low vaccine acceptance rate, there was a lack of trust for the national vaccines, and vaccination rates remained relatively low (Lazarus et al., 2021).

## Lessons Learned and Recommendations

Countries’ COVID-19 responses and approaches varied greatly. Being a higher-income country or having one specific approach did not help to mitigate the spread of COVID-19 among older adults. What helped was a culture and society that valued and prioritized older-adult health and well-being. Cooperation among regional and federal branches on message alignment for mask mandates,

leadership with trust in science, national vaccination campaigns, and having socialized and subsidized health care also helped countries to mitigate viral spread, increase vaccination uptake, and provide timely and low-cost care for older adults.

Not all countries had a strong national policy and COVID-19 strategic plan. In the United States, early in the pandemic, there was a lack of coordination in the national response, with unclear messages from the U.S. president that were not in consonance with the messaging from the U.S. Centers for Disease Control and Prevention. Russia and Brazil similarly had mixed or no governmental response in the early stages, whereas the Canadian and Indian leadership were more effective in their messaging and implementation of measures, such as securing borders, lockdowns, testing, and quarantine. Japan was successful in implementing highly organized programs for mass testing, contact tracing, public messaging, and selective quarantining to identify and isolate outbreaks. While India’s stringent lockdown over three weeks kept cases from rising, it also had inevitable negative impacts on social and emotional well-being, especially for older adults.

Countries also have varied cultures and policies in terms of institutionalizing their older-adult populations, which is a more common practice in high-income countries rather than in middle-income countries, such as India. Older adults living at home, a common practice in middle-income countries, seemed to have lower risks of mental health issues (Cash & Patel, 2020). Additionally, the COVID-19 deaths in U.S. LTCs were associated with the quality of those nursing homes owned predominantly by for-profit corporations, and there are call for policies that hold both the for-profit, private LTC funders and the federal and state Medicare and Medicaid LTC funders accountable (Das Gupta et al., 2021). Furthermore, we recommend novel policies that support intergenerational and independent living to minimize transfer of older adults to LTCs.

We identified several policy lessons for implementation across countries during the pandemic. For example, social isolation and loneliness among older adults, exacerbated by the pandemic, was met with the creation of a “Loneliness Ministry” by the Japanese government, focused on providing consultation services via telephone or social media (The Japan Times, 2021). Other countries could consider similar initiatives to deal with rising mental health issues among older adults. In conjunction, we recommend countries expand digital inclusion and access for older adults, enabling them to own mobile phones. We recommend broadband access and policies that facilitate high-speed internet and related telehealth technologies for rehabilitation care and to stay connected with family, friends, and caregivers (Negm et al., 2022a; 2022b).

The pandemic magnified the existing health-care disparities among disadvantaged populations and the lack or underfunding of public health infrastructures across several countries. We recommend investments in developing

and strengthening public health infrastructures, coordination with homeland security, and building modern health data ecosystems for future pandemic emergency preparedness. We recommend policymakers invest in funding LTC institutions or expanding LTC insurance to cover a wide range of health and social care needs among older adults. Other recommendations include making internationally recognized vaccines available to all older adults for global vaccine equity. Finally, it is important that societies value older adults as an integral part of the community. We therefore call for more inclusive policies and programs that promote overall older-adult well-being and longevity (National Academy of Medicine, 2022).

**We recommend investments in developing and strengthening public health infrastructure, coordination with homeland security, and building modern health data ecosystems for future pandemic emergency preparedness.**

## Funding

None declared.

## Conflict of Interest

None declared.

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