



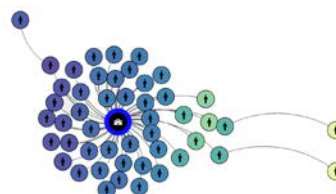
# COVID-related Research on Singapore: A Review

WONG YEE LOK

*Academia* | SG

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**Wong Yee Lok** (wongyeelok@nus.edu.sg) is a Research Associate at the Social Inclusion Project, Lee Kuan Yew School of Public Policy (LKYSPP), National University of Singapore. She received her Master in Public Policy and won the WyWy Gold Medal for Best Student in Public Policy at the LKYSPP. She has worked in a Hong Kong sports charity promoting equal access to sports for youths and is interested in the study of social policies that provide protection from economic risks. She holds a degree in Economics and Finance from the University of Hong Kong.

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# Preface

Three years ago, on April 18, 2020, we published an editorial, “Academia (and knowledge) in the age of pandemic”, reflecting on the responsibilities of citizens and scholars to engage in the public sphere. We argued then that knowledge-production is important for building up insights about the ongoing COVID-19 crisis and that scholars have an urgent, collective task of paying attention to the lacks in existing systems and imagining possibilities for building back better. In the following year, colleagues from various disciplines contributed commentaries to AcademiaSG, answering exactly this call. Like others, we also took to webinars to continue scholarly engagements that could no longer be carried out in seminar rooms and lecture halls, participating in the numerous ongoing efforts at making sense of these times.

While it was clear by April 2020 that the world was facing an unusual crisis, none of us imagined just how protracted and sustained the “social distancing” — including from students, academic colleagues, research field sites, in-person meetings and conferences — would be. Three years on, as we finally resume the full range of “normal” academic activities, there is a feeling of euphoria but also a kind of haziness around the strange time-warp we just experienced: we are excited to be conversing in person again, and indeed appreciative of encounters previously taken for granted; there is tacit understanding that some major shifts have taken place, but perhaps because of fatigue (who isn’t sick of uttering/hearing “pandemic” in 2023?), there is

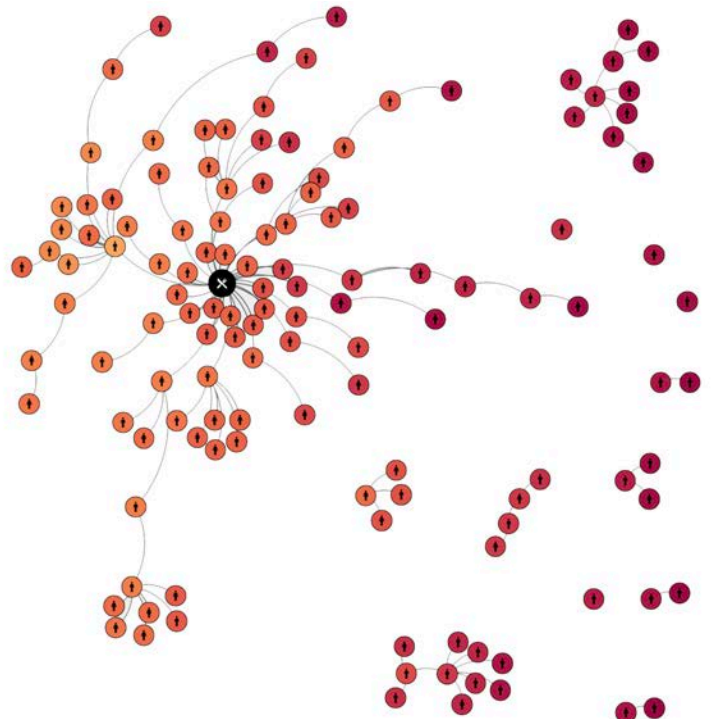
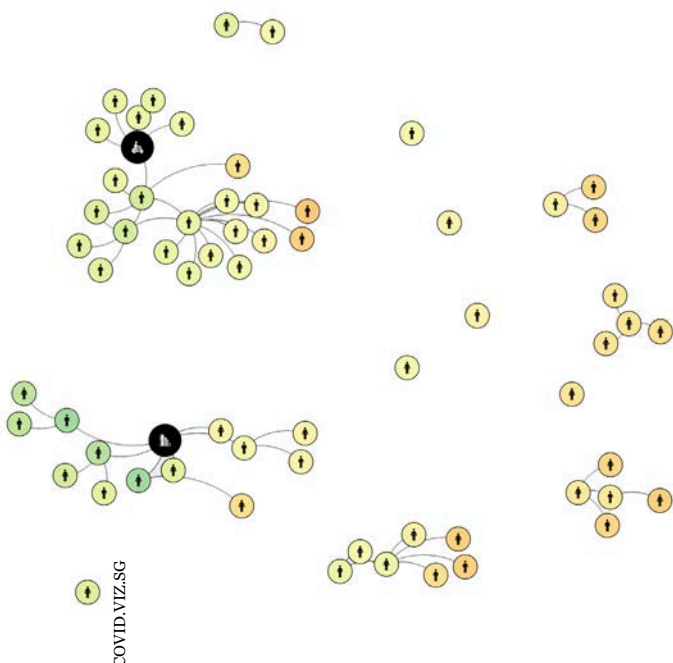
also a surprising lack of reflection on collective lessons.

Many scholars, across disciplines and indeed around the world, have been working to capture the components and textures of the pandemic; the regimes, institutional dynamics, and cultures revealed by the crisis; and the complex and uneven impacts experienced by humans. If in 2020, we were right to articulate that knowledge-production matters for understanding the past and imagining the future, then in 2023, it is appropriate to take stock of these myriad efforts.

As individual academics, we are embedded within disciplines and do not always seek work outside of our areas. Individual members of the public, too, are unlikely to come across the wide range of scholarly research. We decided therefore to commission a literature review that casts a wide net — tracking research across disciplines — and that captures findings in general ways for non-specialist readers. We are delighted that Wong Yee Lok, Research Associate at the Lee Kuan Yew School of Public Policy, has done a magnificent job of collecting, organising, and summarising this work in ways that will help us broaden and deepen our thinking about how we have been shaped through this global crisis and what questions and tasks we should be looking toward.

The task of reflection is important and possible, and perhaps here is where we could begin.

— Teo You Yenn, Chong Ja Ian, Cherian George, and Linda Lim



# Summary

There have been more than 800 academic publications focusing on the COVID-19 pandemic in Singapore. Spanning the full range of academic disciplines, the outputs cluster around six major themes, summarised here. While many important issues have been studied in depth, there are still questions calling for more scholarly attention.

**Methodological note:** This review was conducted using Scopus and ProQuest Social Science Database. The search was conducted on 12 February 2023 and included peer-reviewed journal articles that focused on COVID-19 in Singapore. The search was limited to academic articles that were published in English after 2019. The search strategy used a combination of keywords related to COVID-19 and Singapore, including 'COVID-19', 'coronavirus', 'pandemic' and 'Singapore'. A total of 1,157 articles were identified and the results were exported to a spreadsheet for analysis. After removing duplicate articles and screening the titles and abstracts, a total of 821 outputs were identified as relevant.

## Healthcare response

From epidemiology to healthcare management, research in Singapore improved our understanding of the virus and the measures needed to contain it. Studies also examined challenges such as healthcare professionals' workloads and stress, medical resource allocation, and risk communication. Much vital work remains to be done on how certain populations are more susceptible to infection than others. The identification of specific health and social risks would help prepare for future pandemics.

## Social and behavioural impacts

Secondary impacts of the pandemic ranged from an apparent increase in mental health problems and partner-based violence to the exacerbation of existing inequalities. Like the primary care sector, social service providers struggled to maintain regular services amidst pandemic control measures. Blurred work-life boundaries shifted family dynamics, with low-income families experiencing additional stressors. The pandemic also exposed migrant workers' poor work and living conditions and their inadequate access to health and social services. More research is needed on COVID-19 policy responses' socioeconomic consequences, particularly vulnerable groups.

## Institutional and societal response

The government rolled out several budgetary packages to help Singaporeans cope with COVID-19. The effectiveness of fiscal measures in assisting families and businesses has not been established by research so far. On the technological front, the aggressive adoption of the contact tracing apps TraceTogether and Safe Entry sparked studies concerns about privacy and individual liberty infringement. Other studies looked at the use of social media, which contributed to both public health education and misinformation.

## Educational impact

While COVID-induced online learning had positive effects on exposure to technology, it also led to challenges such as physical isolation among students, increased workloads and diminished work-life balance among educators. Research has highlighted the challenges faced by educators and students during the pandemic while providing insights into strategies to accelerate technology as an integral component of education. Impacts on early childhood development are relatively under-studied.



The pandemic changed social relations and disrupted economies.

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### **Economic and financial impacts**

The labour shortage due to border closure and safe management measures resulted in lower productivity and talent management challenges. Concerns were raised regarding workplace psychological safety and team organisation during the transition from office to work-from-home settings. Researchers have also explored topics such as the potential of organisational transformation, financial innovation, and the acceleration of the platform economy.

### **Environmental impacts**

The COVID-induced closures resulted in positive environmental impacts such as improved air quality, lower energy use in commercial buildings and a temporary drop in carbon dioxide emissions. However, there were concerns about the increase in waste generation driven by changing online shopping behaviours.

The pandemic exposed gaps in our knowledge of public health emergencies. Academic research has filled some but not all of these gaps. Preparing for future crises would require a more thorough examination of both direct and indirect impacts of COVID-19 on different communities in Singapore, especially those without the resources to withstand sudden, dramatic disruptions to their daily lives.

# COVID-related Research on Singapore: A Review

WONG YEE LOK

The COVID-19 pandemic undoubtedly turned our world upside down, bringing with it radical changes to how we live, learn, work and interact with one another. In Singapore, the initial outbreak in January 2020 caused widespread panic, with individuals rushing to stock up on household essentials. In March 2020, clusters began to emerge locally, especially in migrant worker dormitories. Consequently, circuit breaker measures were announced in April 2020 to restrict social interactions. However, these measures significantly impacted people's daily lives, with many experiencing anxiety and social isolation. Thanks to the healthcare community's commitment and the government's effective public health response, the domestic pandemic stabilised in 2021. In 2022, the city lifted most domestic restrictions and re-established international connectivity in light of Singapore's high rate of vaccination. The public's mindset also shifted from panic to one of vigilance and responsibility. The lowering of the Disease Outbreak Response System Condition (DORSCON) level to green in February 2023 indicates a transition to relative normality.

The pandemic presented a unique challenge to researchers and academics, requiring them to adapt their research focus and pedagogical practices as new information and challenges emerged. The academic research related to COVID-19 in Singapore evolved in tandem with the pandemic timeline. In the early stages, significant efforts were made to advance our understanding of the virus and the measures needed to contain it. From epidemiological studies to healthcare management, researchers in Singapore have made important contributions to the global fight against COVID-19. Throughout the pandemic, social research in Singapore has also played an essential role in understanding the impact of COVID-19 on people's lives, from the topics of mental well-being, remote work and educational disruptions, to the question of how COVID-19 exposed and exacerbated existing societal inequalities. Research on policy and politics has examined the development of public health policies, the impact of political decision-making on public health outcomes, and COVID-related information and misinformation. Moreover, extensive research focused on the impact of COVID-19 on the financial market and businesses, with particular focus on the hardest hit industries, as well as innovation and digital transformation. As human movement outside the home was curtailed, some studies looked at the effects of the pandemic on the natural environment. This review sheds light on the research related to COVID-19 in Singapore and focuses on six major themes: (i) healthcare response, (ii) institutional and societal response, (iii) so-

cial and behavioural impacts, (iv) educational impact, (v) economic and financial impacts and (vi) environmental impact.

As Singapore officially exited the acute phase of the pandemic, an opportunity was presented to take stock of the COVID-related academic outputs. A comprehensive review of COVID-related research in Singapore will allow us to understand the challenges and opportunities presented by the pandemic. In doing so, we can identify the broader implications beyond the pandemic, highlight gaps in knowledge and develop strategies in preparation for future crises.



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## Healthcare response

Singapore was proactive in its healthcare response to the COVID-19 pandemic, with extensive research conducted to develop effective strategies for managing and controlling the spread of the virus. This section will provide a comprehensive review of the healthcare response to COVID-19 in Singapore, covering key areas such as epidemiological research, the vaccination programme, the application of telemedicine and the impact of the pandemic on the healthcare community.

### Epidemiological research

There have been numerous epidemiological studies related to COVID-19 in Singapore, covering a wide range of topics, including the transmission dynamics of different SARS-CoV-2 variants, risk factors for infection, testing and various prevention and treatment practices. In terms of transmission, research utilised different tools such as spatial big data analysis and genetic programming to predict and explain both the community transmission and intra-household transmission trends (e.g., Gurram et al., 2022; Wei et al., 2020). The role of primary care clinicians in the early identification of suspected infection was highlighted (S. Sim et

The government made masking in public compulsory on 14 April 2020.

al., 2021; S. Y. S. Wong et al., 2021). Other studies identified risk factors for severe COVID-19 outcomes in Singapore, such as old age, male gender, and initial acuity (e.g., J. P. Lim et al., 2021; J. N. Ngiam et al., 2021, 2023). There have also been studies looking at the use of various diagnostic tests for COVID-19, such as PCR and serology tests, and their test accuracy (i.e., sensitivity and specificity) (G. Cheng et al., 2022; Koo et al., 2022). A group of studies discussed the various treatment practices for COVID-19 patients, for example, nutrition support (Lew et al., 2022); antibiotic therapy (T. M. Ng et al., 2022) and post-critical illness management (Ramalingam et al., 2020). Researchers also looked at the effectiveness of vaccination – including vaccine combinations, vaccine types and booster effectiveness – among different demographic groups to inform the government’s vaccination programme (e.g., Chiew et al., 2023; O. T. Ng et al., 2022). Other studies investigated the effectiveness of mask-wearing and hand-washing in preventing COVID-19 infection (e.g., Ozdemir et al., 2020).

There have also been studies in Singapore examining the impact of COVID-19 on the diagnosis and management of other diseases, particularly those with comorbidities. For example, a study by Kee et al. (2020) found that there was reduced access to kidney transplantation during the COVID-19 outbreak, potentially due to social distancing measures and the suspension of living kidney donor programmes. There was also a higher incidence of in-hospital cardiac arrest and a lower rate of survival to hospital discharge during COVID-19, as compared to the pre-COVID period (Lyu et al., 2021). A similar result was presented by S. L. Lim et al. (2021), which showed longer waiting time for emergency medical service for out-of-hospital cardiac arrest and hence worsened medical outcomes. In contrast, T. Lee et al. (2022) suggested that Singapore did not see worsened later-stage cancer presentation and outcomes after lockdown measures. Omar et al. (2020) also reported a continual provision of essential surgical services during the pandemic.

Singapore’s vaccination campaign started in December 2020.





A few studies looked at the dual outbreak of COVID-19 and dengue, with researchers reporting increased dengue transmission in the community but decreased dengue transmission in migrant worker populations (J. T. Lim, Chew, et al., 2021; J. T. Lim, Dickens, et al., 2021). Concerning comorbidity, the most common comorbidities identified were hypertension (e.g., Pang et al., 2022), diabetes mellitus (e.g., E. Yeoh et al., 2021), and cardiovascular disease (e.g., B. K. C. Yap et al., 2022), particularly among older patients.

In addition, several studies examined the environmental–epidemiological aspect of COVID-19 transmission in Singapore. Daily COVID-19 case numbers in Singapore were associated with air pollutant concentrations and meteorological factors such as rainfall, humidity and temperature (Lorenzo et al., 2021; Pani et al., 2020). In summary, COVID-19 transmission was positively correlated with temperature and air pollutant levels (Lorenzo et al., 2021) and negatively correlated with absolute humidity (Z. Liu et al., 2021).

### **Vaccination programme**

Singapore was among the first countries in Asia to roll out a vaccination campaign. Vaccination rates have been the determining factor in the Singaporean government’s decisions regarding reopening and the design of vaccination-differentiated measures, reflecting its endemic strategy (Zhang et al., 2022). Research about the vaccination programme in Singapore focused on the level of vaccine hesitancy compared to other countries.

A range of factors was associated with COVID-19 vaccine hesitancy. M. Tan et al. (2022) highlighted trust in formal sources of information as being effective in promoting vaccine uptake. Similarly, Shah et al. (2022) revealed that information seeking from digital sources and non-health related governmental agencies and family, friends and influencers was positively associated with high vaccine intent. L. F. Tan et al. (2022) related higher vaccination rates in Singapore to the diversity of vaccines offered and citizens’ sense of social responsibility as well as the individual sense of responsibility for the well-being of society as a whole in the Asian culture. K. Y. K. Tan et al. (2022) suggested that booster vaccine hesitancy was associated with higher education and the perception that the threat of COVID-19 had decreased. Among adolescents, the potential long-term side effects and concerns about vaccine efficacy were the main barriers to vaccination (Oka et al., 2022). Hesitancy among parents towards COVID-19 vaccination for their children was associated with having a low household income, unvaccinated parents and knowing someone with an adverse reaction to the COVID-19 vaccine (Low et al., 2022).

### **Telemedicine**

During the COVID-19 pandemic, telemedicine played a crucial role in ensuring that patients continued to receive medical care while minimising the risk of infection. In Singapore, telemedicine has been used in multiple settings, such as teledental consultation (Chong, 2022), digital technology for prosthetic and orthotic service provision (Binedell et al., 2020), cancer care (Z. Y. Chan et al., 2022; M. Chen et al., 2022), chronic diseases (Haroon et al., 2022), speech and language therapy (Peh et al., 2022) and occupational therapy (Priyadharsini & Chiang, 2020). The Ministry of Health also deployed a telemedicine service to triage and manage COVID-19 cases in the community (Kok et al., 2022).

Telemedicine allowed healthcare professionals to provide continued care, identify issues brought about by social isolation and

render timely assistance (M. Chen et al., 2022). Studies evaluating the effectiveness of telemedicine during the pandemic have shown that it improved medical manpower efficiency and workflow, reduced infection risks for healthcare professionals and avoided delayed consultations due to social distancing measures (Lock et al., 2022; T. Singh et al., 2020). The major challenges were costs, lack of skills and training and technological effectiveness (Binedell et al., 2020). In addition, not all types of examination can be done via teleconsultation (Lock et al., 2022). Patients found teleconsultation convenient, saving them time and expense and liberating them from the stress incurred when visiting healthcare facilities during the height of the COVID-19 pandemic (Chow et al., 2022). However, there were concerns about privacy and data security, as well as technical and logistical disruptions (Chow et al., 2022; C. H. Chua et al., 2022; J. Sim et al., 2021). Another concern was the lack of personal touch to mitigate the emotional stress of patients (C. H. Chua et al., 2022; J. Sim et al., 2021). Older adults with limited digital literacy and low-income patients found it a challenge to access telemedicine consultations (Z. Y. Chan et al., 2022; C. L. Teo et al., 2021). Overall, the research predicts a wider application of telemedicine as more resources and knowledge were devoted to setting up telepractice to overcome the challenges faced by medical workers and patients.

### **Impact on the healthcare community**

Healthcare management and leadership were critical to the success of pandemic control. Studies illustrated the experiences and challenges faced by the healthcare community in managing the pandemic including issues related to workforce management, medical resource allocation and risk communication. Many reflected on their decisions in setting up isolation wards and redesigning bed resource planning for both COVID-19 patients or other specific groups (e.g., an isolation maternity unit in He et al. [2022]). These studies suggested that robust collaborative management structures were essential to the quick deployment of human and capital resources to sustain a high level of health services delivery during COVID-19 (Lam et al., 2022).

The COVID-19 pandemic has had significant impacts on healthcare professionals and medical students in Singapore. Frontline healthcare workers faced higher risks of infection, additional workload and stress due to the pandemic, resulting in physical symptoms, such as headache, insomnia and throat pain, as well as psychological distress (N. W. S. Chew et al., 2020). Healthcare workers perceived themselves to be at high risk of COVID-19 infection and a source of risk to loved ones (Au-Yong et al., 2022; Lau et al., 2021; Tang et al., 2021; Thangayah et al., 2022). Despite some workers accepting the risk as part of their job, they still felt stressed and anxious about falling ill and experienced low morale (Rasappan & Oh, 2020). They experienced burnout, reduced job dedication and poorer self-rated health after the outbreak (Aloweni et al., 2022). Healthcare workers who identified as female and had a history of psychiatric illness, suffered underlying medical conditions, experienced prejudice for working on the frontline, or lived with older people, were found to be more likely to experience poorer mental health outcomes and prolonged psychological distress (Khaing et al., 2022; Th'ng et al., 2022). Studies also reviewed the measures taken by the healthcare sector to cope with the clinical workload and disruptions to clinical rotations. These measures included the use of online platforms, modifications to posting and promotion requirements, adequate training and provision of protective equipment (B. Y. Q. Tan et al., 2020). Pandemic preparedness among healthcare workers was enhanced by improving organisational

structure, staff compliance and vigilance, and staff's involvement in the outbreak planning (Fernandez et al., 2022; Ooi et al., 2022).

Nursing and medical students have also been affected by the disruptions to clinical attachments and challenges of home-based learning, leading to concerns about not being able to meet training requirements and hence suffering from burnout and depression (C. E. Goh et al., 2022; Hu et al., 2022; T. L. Teo et al., 2021). Similarly, clinical educators faced additional stress in balancing increased clinical load and student supervision at the beginning of COVID-19 (Y. X. Tay et al., 2020). There were also concerns about the risk of viral exposure among healthcare students and educators (T. J. W. Koh et al., 2021). On the other hand, medical students were generally receptive to online learning (Y. Koh et al., 2022; S. H. X. Tan et al., 2021; Tang et al., 2021). Online learning tools, such as the Virtual Integrated Patient in Kong et al., (2021), played a role in facilitating the application of inter-professional communication strategies and patient assessment frameworks (W. L. Chua et al., 2022). Overall, there is a need to include pandemic preparedness in future clinical training (T. J. W. Koh et al., 2021; Kong et al., 2021). The experience gained in virtual training revealed the potential of e-learning adoption and innovation in healthcare education (C. E. Goh et al., 2022).



## Institutional and societal response

Minister Lawrence Wong co-chaired the multi-ministry task force tackling the pandemic.

In response to the pandemic, Singapore implemented various public policy measures, including extensive contact tracing efforts and public communication campaigns, to mitigate the spread of the virus. There were efforts to provide accurate and timely information to the public while countering misinformation that could potentially hamper the effectiveness of public health efforts. This section will examine the institutional and societal responses to the pandemic in Singapore, focusing on public policy measures, contact tracing efforts and the impact of information

and misinformation on the public's perception and response to the pandemic. Additionally, the Singaporean general election was held amidst the ongoing COVID-19 pandemic, resulting in a unique impact on electoral outcomes.

### Policy response

When talking about pandemic response strategies, scholars often refer to Baker and colleagues' (2020) framework of pandemic interventions: elimination, suppression and mitigation. In the early stages of COVID-19, Singapore adopted an elimination (also known as containment) strategy of excluding and eliminating community transmission through early detection, early isolation and early treatment (H. Chen et al., 2021). Singapore also implemented strict social distancing measures during the circuit breaker period through the closure of schools, workplaces and non-essential businesses. Its COVID-19 approach was often described as top-down and state-led, accompanied by a state-mobilised yet marginalised civil society (S. Kim, Goh, et al., 2022; S. Yuen et al., 2021). The country's experience with the SARS outbreak in 2003 also played a significant role in guiding its response to COVID-19. Academic articles related to Singapore's learning from SARS provide insight into the strategies implemented to contain the spread of the virus, such as multi-sector collaboration, digital technology, the legal framework and economic response (Feitelson et al., 2022; S. Kim, Goh, et al., 2022; S. B. Tan et al., 2022).

Singapore's initial success in managing COVID-19 was hailed as the 'gold standard' for its fast and robust healthcare response. But there were also response inadequacies and recommendation inconsistencies, for example, the outbreaks in migrant worker dormitories and the inconsistent mask-wearing rules (Abdullah & Kim, 2020; H. K. Kim & Tandoc, 2022b). Concerning COVID-19 outcomes, Singapore experienced low fatalities but high rates of infection. Yuen et al. (2021) argued that these failures were partly caused by the marginalisation of civil society actors in Singapore's initial responses. Similarly, Woo (2020) suggested that it was Singapore's deficiencies in analytical capacity (i.e., capacity to take precautions against a visible yet largely ignored or denied major risk prior to a crisis) that explain the high infection rates among the most vulnerable groups, such as migrant workers. An & Tang (2020) provided insights into the design and administration of policy instruments related to Singapore's surge of infection among migrant workers: first, the early success that tapped into Singapore's collectivist orientation should be consistently exercised through a pandemic, and, second, policy instruments must be designed to address social equity and reach all corners of the population. Through trial and error, Singapore managed to adjust its policies and apply learning-driven coordinated strategic approaches (Abdullah & Kim, 2020).

Several research studies have been conducted on the monetary support provided to families and businesses. There were several packages of fiscal support measures (e.g., the Unity budget, the Resilience budget and the Solidarity budget) for the management of COVID-19 and its socio-economic impact. Examples of support to families included both conditional and unconditional cash transfers and the Work Income Supplement wage supplement (Khondker, 2021; C. Y. Kwan, 2021). Support to businesses ranged from wage subsidies and additional support for the self-employed and industries most directly affected, to rent support and so on. However, there is limited research on the effectiveness of these policies in helping businesses and individuals to cope with economic challenges.



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### Contact tracing

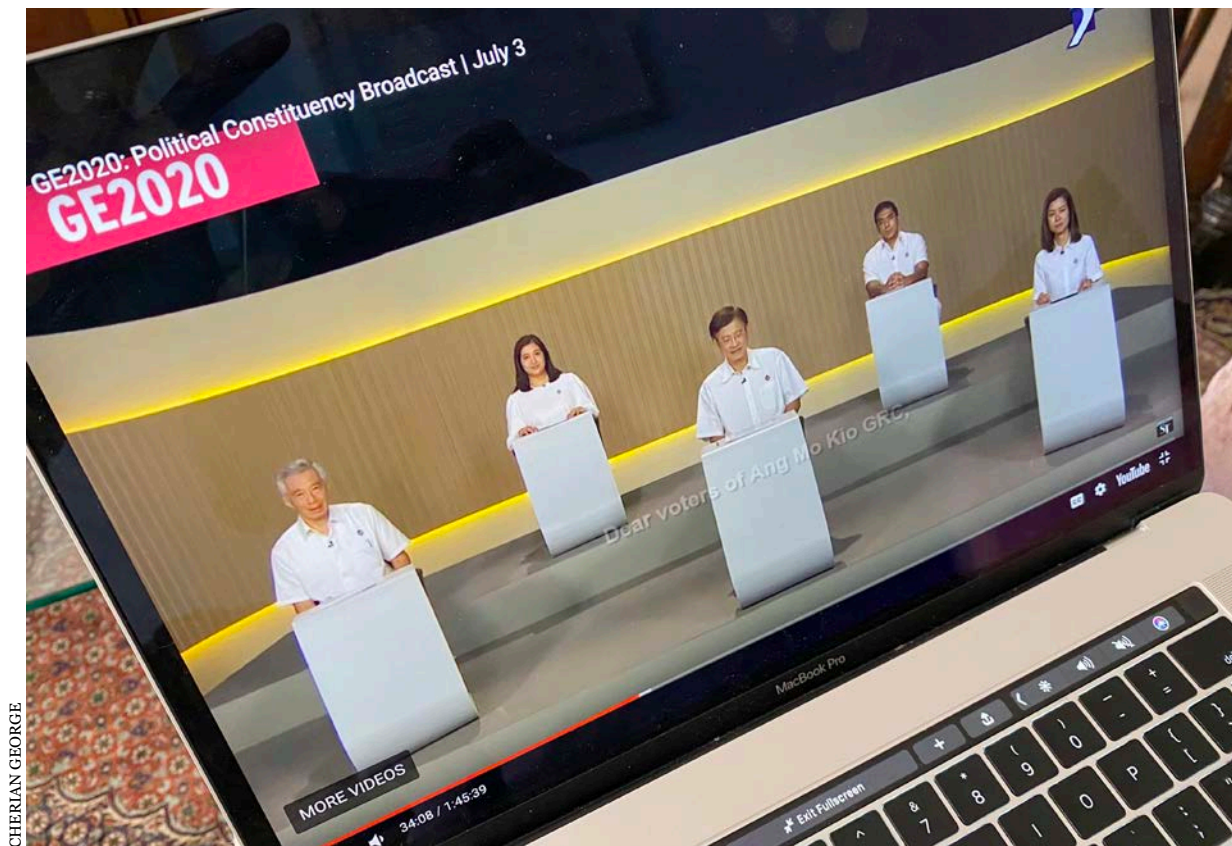
To enable early detection of COVID-19 infection, most countries introduced digital contact tracing tools. In Singapore, both the TraceTogether and Safe Entry apps and wearables have been retired as the country has now lifted most COVID-19 restrictions. Several studies were tracing the development, deployment and adoption of these apps. For example, T. Lee & Lee (2020) outlined the development of these technologies and highlighted the government's desire to normalise how citizens understand and accept surveillance, as well as the promotion of technological competence as part of the Smart Nation initiative. Both J. K. Lee et al. (2021) and Geber and Ho (2022) revealed that the adoption of TraceTogether was associated with the perceived social norms and high prevalence and approval of important social referents.

However, there have also been concerns about the potential infringements upon privacy and individual liberty with the use of technology for contact tracing, as some of these technologies involved the collection and use of personal data and were suspected of being used beyond the scope of the public health emergencies topic (Maati & Švedkauskas, 2020; Schaefer & Ballantyne, 2022). Goggin (2020) discussed the digitally underpinned governmentality of TraceTogether. Dialogic communication is recommended to facilitate trust-building and address public concerns related to data use (G. K. S. Tan & Lim, 2022).

### Information and misinformation

The onset of COVID-19 led to a surge in social media traffic as people turned to these platforms to stay informed, connected and entertained. In the public setting, public health messages helped to promote trust in governmental response and improve the adoption of preventive measures (Ozdemir et al., 2020). In the private setting, content creators on Instagram pivoted towards sharing their personal experiences coping with the pandemic and engaging with their followers through live chats to maintain engagement during Singapore's circuit breaker period (Abidin, 2021).

The TraceTogether app was launched in March 2020 and deactivated in February 2023.



CHERIAN GEORGE

Virtual campaigning during the 2020 General Election.

However, COVID-19 also fuelled the spread of misinformation related to vaccines, cures, case counts, government responses and conspiracy theories about the virus (L. H. X. Ng & Loke, 2021; Tandoc et al., 2022). In fact, most Singaporeans were exposed to COVID-19 rumours or fake news (Long et al., 2021). Higher exposure to both COVID-19 news and rumours caused psychological distress (J. C. J. Liu & Tong, 2020). To combat misinformation during the pandemic, Singapore relied on the Protection from Online Falsehoods and Manipulation Act (POFMA) and a fact-checking website called Factly, as well as the fact-checking agency Black Dot Research. Government agencies also utilised messenger apps to provide instant updates, which helped mitigate news-related anxiety (J. C. J. Liu & Tong, 2020).

Despite mainstream news media playing an important role as gatekeepers and correctors of health-related misinformation, they inadvertently increased the risk of the dissemination of misinformation and knowledge miscalibration (S. Lee et al., 2022; Lwin et al., 2023). Social media was another common source of COVID-19 misinformation transmission, especially for those who rely on social media platforms for news consumption (Ahmed & Rasul, 2022).

The effects of misinformation exposure vary based on an individual's news avoidance behaviour, health literacy level and interaction with their social circles. For instance, news fatigue and difficulty in analysing information could increase belief in COVID-19 misinformation among those who were frequently exposed to it (Tandoc & Kim, 2022). Similarly, individuals with low e-health literacy levels were more likely to be exposed to and engage in misinformed behaviours (H. K. Kim & Tandoc, 2022a). The trustworthiness and perceived veracity of information were critical to how people interpret health information (R. K. J. Tan et al., 2022). Finally, individuals shared unverified information to maintain social connections, gain status, or show good intentions (Duffy & Tan, 2022).

## COVID election

One area of particular interest was the ‘COVID election’ because the 18th general election was held amid the pandemic, and it was the first time that an election was held parallel to a public health and economic crisis. Researchers studied the impact of the pandemic on the election campaign (B. H. Chua & Wong, 2020), political participation (J. Y. Kwan, 2022; Uyheng et al., 2021) and the electoral outcome (Oliver & Ostwald, 2020). The findings suggested that the People’s Action Party’s (PAP) dominance remained intact, albeit with an unexpectedly strong opposition performance. This was surprising because the initial successful virus containment was expected to generate electoral support for the PAP government, as evidenced by the party calling for an earlier election (B. H. Chua & Wong, 2020). One explanation for the strong opposition performance is that the shift from physical campaigns to online and onscreen campaigning during COVID-19 negated aspects of the PAP’s traditional campaign advantages (Oliver & Ostwald, 2020) and favoured the opposition who held more online influence (Uyheng et al., 2021). Other reasons for the PAP’s decline in vote share could be the degradation in public trust caused by over-reliance on coercive policy tools (e.g., the use of POFMA correction notices on online blogs and statements made by opposition politicians that gave rise to public unhappiness) (Woo, 2020b) and the limited popular appeal of the PAP’s fourth generation (4G) leaders (Oliver & Ostwald, 2020; B. Singh, 2022).



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## Social and behavioural impact

Social distancing policies had a major impact on family life, schooling, and work.

The pandemic brought about a significant impact on Singapore’s society and exposed and exacerbated many underlying issues in Singapore’s social fabric. In this section, we will explore the various social and behavioural impacts of COVID-19 in Singapore and discuss research findings on these topics.

## Social services

Globally, COVID-19 resulted in a significant burden in nursing home facilities. Not only did the primary care sector have to adjust to the pandemic, but social services also had to apply pandemic control measures while at the same time maintaining their regular services. H. S. Goh et al. (2021) documented the measures taken by a nursing home to ensure continuity of service, contain the virus, and maintain administrative coordination and staff development. On one hand, social service providers reported increased engagement with clients and stakeholders, and increased use of telecommunication modalities, which contributed to the perceived enhancement of social connectedness for service users (C. Y. L. Cheng & Jiang, 2023). On the other hand, there were difficulties using telecommunications, resource constraints and work stressors. Social workers faced additional stress due to caseload, problematic grief, and concerns about the well-being of their service users, while at the same time being worried about their own work–life balance (S. N. Goh et al., 2022). For caregivers, caregiving intensity and burden increased dramatically for those who had to provide ‘24/7’ care to patients with minimal support, mainly because of the imbalance between caregiving and their personal lives, and the overwhelming sense of helplessness they felt (E. Y. H. Chew et al., 2022).

## Family dynamics, work–family balance

With families spending more time together due to stay-at-home orders and remote work arrangements, there were shifts in family dynamics and blurred work–life boundaries. Yet, varying household economic situations meant the consequences of the lockdown were unevenly distributed, with low-income families experiencing additional social and economic stressors (Ko & Kang, 2020). Parents experienced extra parenting stress, resulting in harsher parenting, which led to deteriorated parent–child relationships (G. Chung, Lanier, et al., 2022). This stress was exacerbated by job loss and reduced income for some families. Family resilience, as measured by factors such as meaning-making and positive outlook, and flexibility and connectedness, was reported to be a significant factor of reducing COVID-19 psychological impact among family members (Y.-C. L. Ho et al., 2022). For young adults, families with better intergenerational communication, particularly accommodation communication, tended to feel closer, more flexible in resolving conflicts and more satisfied with each other (Tam et al., 2021). But lower family flexibility at the time of COVID-19 led to greater depressive symptoms among young people.

Partner-based violence was also a concern during the COVID-19 lockdown. O’Hara & Tan (2022) found that some factors (i.e., being younger, being non-heterosexual and having more children) were significantly associated with the occurrence of partner violence regardless of lockdown. However, the lockdown made partner violence worse for individuals who were of Chinese ethnicity or had a monthly income above S\$3,000, indicating that the lockdown made these groups more vulnerable to partner violence.

Furthermore, COVID-19 highlighted gender inequalities at home and at work. Retrenchment and voluntary resignation were more frequent for women than for men (Reichelt et al., 2021). G. S. K. Chung et al. (2023) found that mothers were more likely to have poorer work–family balance, which is linked to higher parenting stress and increased marital conflicts. Work occupational commitment, work role overload, parental demands and family





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support were the key predictors of work–family conflict for women in Singapore (Neo et al., 2022).

### Mental health

Mental health has been a concerning topic during and after COVID-19 in Singapore. For instance, Ung et al. (2022) showed the Generalised Anxiety Disorder-7 (GAD-7) level went up during the pandemic, with higher GAD-7 levels related to alcohol consumption, loneliness and difficulty in switching off social media among participants. Several studies investigated mental health deterioration among different demographic groups during COVID-19. For example, Yang et al. (2023) related worsened mental health for parents with increased household responsibilities and conflict with other adults in the household. K. Y. Y. Ng et al. (2020) revealed a high prevalence of anxiety among patients with cancer and their caregivers. E. P. X. Lee et al. (2022) reported increased loneliness among older people, with worsening loneliness scores associated with decreased physical activity, male gender, living alone and Indian ethnicity. Other studies found that younger adults were more vulnerable to psychological distress due to low psychosocial adaptability (Thangaraju et al., 2022; Yu et al., 2022).

Another area of research has been the impact of the pandemic on help-seeking behaviour and individuals' coping mechanisms. Some reported that the online tools (e.g., web-based mindfulness training and online mental health literacy exercises) were successful in identifying mental health disorders during COVID-19, improving help-seeking intentions and reducing stress among participants (J. Lim et al., 2021; J. L. Tay, 2022). In Singapore, access to hawker centres, an important social space, had a positive influence on individual, relational and social well-being by establishing the feeling of normalcy and the availability of support routines during stressful events (Radomskaya & Bhati, 2022). For parents, coping methods included having spousal support, sticking to a routine and managing their own expectations (G. Chung, Rodriguez, et al.,

A foreign worker dormitory. Migrant workers' movements continued to be restricted long after life for others in Singapore returned to normal.

2022). Some suggested that pet ownership, physical activity and home gardening were beneficial in building mental resilience in times of social isolation (Sia et al., 2022; J. S. Q. Tan et al., 2021). On the other hand, the use of the internet for mood regulation contributed to cognitive preoccupation and thereby negative outcomes of internet use (e.g., the rise of misinformation and threats to well-being) (Z. H. Goh et al., 2022).

### **Living and working conditions of migrant workers**

The pandemic has exposed poor work conditions for migrant workers. Pre-pandemic research on migrant workers' working conditions highlighted Singapore's 'use-and-dispose' approach to these workers, characterised by extreme neoliberalism (e.g., B. S. A. Yeoh, 2004, 2007). The COVID-19 outbreaks among Singapore's migrant workers have further highlighted their vulnerabilities.

During the initial outbreaks, migrant worker dormitories and construction worksites were implicated in the transmission of COVID-19 (Gan & Koh, 2021). The crowded and poorly ventilated rooms in the dormitories made migrant workers highly vulnerable to COVID-19 transmission (Dutta & Rahman, 2022). Studies on the design of dormitories have suggested that some rooms are poorly oriented with insufficient distance between beds (Gorny et al., 2021; Zheng et al., 2021). Living conditions also limited workers' ability to practice preventive health behaviours. Migrant workers reported being unable to follow social distancing rules in their living quarters (Dutta, 2021a, 2021b), highlighting a gap between policy articulations and the actual lived experiences of living in crowded conditions. On construction worksites, safe management practices before COVID-19 focused largely on physical hazards but not on healthcare practices and health management protocols (Gan & Koh, 2021), contributing to cross infections among workers from different companies.

As the most severely affected group in Singapore, migrant workers faced significant mental health challenges due to factors such as social isolation, uncertainty about their employment and fear of contracting COVID-19 (L. G. Chan & Kuan, 2020; M. C. P. Wong et al., 2022; Yee et al., 2021). These challenges were exacerbated by the social and institutionalised discrimination faced by migrant workers in Singapore (Ye, 2021). State-defined categories of migrants around the discourse of cosmopolitanism have led to differentiated inclusion and even everyday racial stigmatisation (Dutta & Rahman, 2022). Migrant workers reported being afraid of bringing up issues, and experienced threats of deportation when they complained about their inability to practice social distancing measures in the dormitories (Dutta & Rahman, 2022). Although dormitory managers were assigned to gather feedback on dormitory conditions from migrant workers, the interplay of power and control embedded in the dynamics between workers and managers made such a feedback system impractical. Social media intensified the spread of xenophobic attitudes towards foreigners among Singaporeans, making migrant workers more vulnerable to discrimination during the pandemic (Ahmed et al., 2021; Kaur-Gill, 2020, 2022). Despite these challenges, COVID-19 made migrant workers visible (Chattoraj, 2022). They were appreciative of the attention given to them by the Singapore government in the provision of food, necessities and COVID-19 treatment (Hildon et al., 2022). Thus far, research on migrant workers during the pandemic in Singapore underscores the need to improve work and living conditions for migrant workers (e.g., Gan & Koh, 2021) as well as the importance of distributive justice concerning the allocation of public services (e.g., Yi et al., 2021), particularly in regards to the government's reforms of build-

ing codes and healthcare systems (e.g., Zhu et al., 2022).

### Digital access

In terms of digital literacy, researchers discussed the challenges faced by vulnerable groups in Singapore, such as older people, low-income families and migrant workers, to access and use digital technologies. These challenges include financial and logistical barriers, language barriers, concerns about scams, and physical and cognitive impediments (e.g., dexterity issues and visual impediments) (H. A. Lim et al., 2022). Older workers were also less proficient in using technology to make adequate adaptations to COVID-driven lifestyle and workplace changes (P. N. Lee et al., 2022). To achieve universal digital access, it is recommended that digital resources have to be automatic and affordable, and designed to cater for the most digitally excluded (I. Y. H. Ng et al., 2022; N. H. W. Ngiam et al., 2022).



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### Consumer behaviours

During the early stages of COVID-19, there was a surge in panic buying. Using the health belief model to draw links between individuals' behaviours and their health beliefs and attitudes, studies suggested that normative social influence, perceived scarcity, observational learning and perceived severity of contracting COVID-19 were the major contributing factors of panic buying behaviour, while government control and consumers' anticipation of regret partially mediated panic buying (G. Chua et al., 2021; X. Li et al., 2021; K. F. Yuen et al., 2021). At the same time, there was a reduction in consumer spending associated with the lockdown policy, heightened economic uncertainty and reduced income during the pandemic (S. Kim, Koh, et al., 2022).

Empty supermarket shelves in February 2020.

With lockdown and social distancing measures in place, consumers turned to online shopping. Some research in Singapore

documented these trends toward digitalisation and explained changes in consumer behaviours. Wang et al. (2022) identified health risks and self-identity expression as two motivations that led to technology dependency among consumers. Consumers also reported a higher level of acceptance toward technology use in delivery (Ma et al., 2022; K. F. Yuen et al., 2022). In particular, convenience and service quality contributed to the increase in having online grocery orders delivered (Vasudevan et al., 2022). Unfortunately, in some cases, increased online food delivery led to unhealthy eating behaviours during and after the circuit breaker period, possibly resulting in negative long-term health consequences (Agarwal et al., 2021).

## Educational impact

The pandemic caused great disruption to schooling worldwide, and Singapore was no exception. In Singapore, in-person learning and extra-circular activities were suspended and shifted online in April 2020. Research in Singapore has highlighted the challenges faced by educators and students during the pandemic, while providing insights into strategies to accelerate the use of technology as an integral component of education.

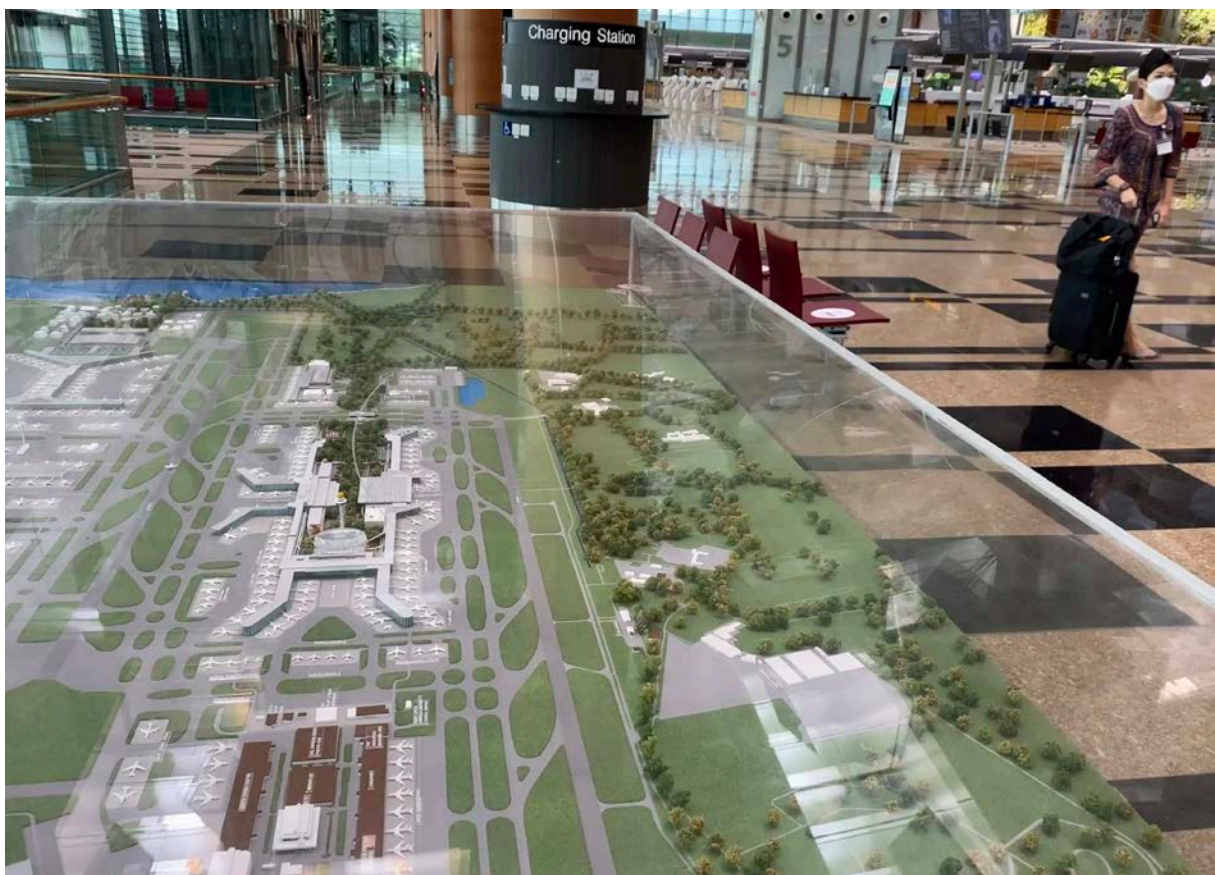
At primary and secondary education levels, educators had to design an online learning environment that could meaningfully engage students while considering a range of student-centred factors including screen time, the emotional needs of students and so on (L. Y. Tay et al., 2021). Educators were required to use a variety of EdTech (i.e., educational technology) to deliver lessons and monitor students' progress (Phillips et al., 2021). Ensuring privacy and security was a challenge in the early stages of COVID-19 due to hacking incidents (S. Tan et al., 2022). In addition, online learning was deemed suboptimal for larger classes, project work, and physical and music education. For primary students, the blended learning approach helped them to develop the capacity for independent learning (P. T. Ng, 2021). However there was a need for parents to develop readiness for EdTech and support for their children, and to monitor their children's learning at home on behalf of the teachers (H. H. Goh et al., 2023). Secondary students were concerned about their academic progress and found online learning challenging and ineffective, but some of them demonstrated resilience and found ways, such as turning to others, to deal with the stress (Soon et al., 2023).

At the post-secondary level, a few studies reflected on the journeys of navigating the alternative mode of teaching and assessment in various academic fields, for instance, chemistry at the undergraduate level (Fung & Lam, 2020), and public administration (Rawat et al., 2022) and IT in business (Gottipati & Shankararaman, 2021) at the graduate level. These studies highlighted lessons about maintaining a highly interactive education when transitioning to alternative teaching and assessment modes. Researchers believe that such a transition will contribute to a paradigm shift in the organisation and delivery of post-secondary education (Watermeyer et al., 2022).

Using online platforms reduced students' anxiety and increased self-reported class participation through partial anonymity (i.e., students were only identifiable by their voices) (Yep et al., 2023). Students also saw the increased flexibility of shifting online as beneficial to receiving family support and taking up other responsibil-

ities, but also flagged the increased risk of domestic violence (Rudolph et al., 2023). Online learning was perceived by working-age adults as a way to improve their exposure to continuing education and tech-savviness (Billett et al., 2022). However, students found physical isolation challenging as they could not meet their friends, leading to sadness and frustration (Rhodes et al., 2022). J. Kwan (2022) suggested a moderate level of academic burnout among undergraduates but a high level of academic resilience and a sense of belonging to their university.

Despite the positive effects of the flexible teaching arrangements during COVID-19, the abrupt transition to online learning led to increased workloads, a sense of loneliness and diminished work–life balance among educators, contributing to experiences of burnout, stress and anxiety (Rudolph et al., 2021, 2023). Educators expressed strong preferences for in-person classes but were able to readjust their expectations related to online teaching (Müller et al., 2021).



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## Economic and financial impact

A deserted Changi Airport in August 2021.

The COVID-induced economic disruptions also spurred a wave of economic and financial research in Singapore, discussing the impact COVID-19 had on businesses and the financial market, and the future of work. Researchers have been studying the effects of COVID-19 on various sectors, including creative cultural industries (Yue, 2022), real estate (Rangaswamy et al., 2022), construction (Ling et al., 2022), air transport (Lin, 2022) and hotel management (Garavan et al., 2022). Industries faced higher project budgets due to significant project delays and material cost increases. The severe

labour shortage because of border closures and safe management measures resulted in lower productivity and challenges in talent management. While some studies focused on the economic impact of lockdown and travel restrictions, others explored the potential of organisational transformation (e.g., C. Lee et al., 2021), financial innovation (e.g., C.-M. Ho, 2023; Karim et al., 2022) and the acceleration of the platform economy (e.g., Hanakata & Bignami, 2022). Regarding workplace protection, concerns were raised about the protection of workers at the workplace, psychological safety and organisation during the transition from office to work-from-home settings (H. Lee, 2021; W. T. Ng, 2021).

Related to the financial market, there have been several studies comparing the impact of the pandemic on stock markets, exchange rates and cryptocurrencies in Singapore and other Asian countries (mostly ASEAN countries and East Asian economies) (e.g., Aziz et al., 2022). At the beginning of the pandemic, the Singapore equity market reacted to the local occurrence of COVID-19 and was strongly dependent on the US markets (Kakinuma, 2022). Research also found that there were significant and abrupt financial market volatilities in Singapore that spread from one asset or market to another, and prolonged and extreme exchange rate volatility of the Singapore dollar, potentially caused by the COVID-19 fear and uncertainty (Ain Shahrier, 2022; Sadiq et al., 2021).

## Environmental impact

Environmental research has shown that the significant reduction in human activities stipulated by COVID-19-induced closures had positive environmental impacts. For instance, air quality improved as evidenced by reduced fine particulate matter (PM<sub>2.5</sub>) and nitrogen dioxide (NO<sub>2</sub>) levels during the circuit breaker period (Chi et al., 2022; Y. Li et al., 2022). Additionally, commercial buildings showed lower energy use (Cai & Gou, 2022), although there was a strong positive correlation between daily COVID-19 cases and residential electricity consumption (Raman & Peng, 2021). There was a significant yet temporary net drop in carbon dioxide emissions during the circuit breaker related to reduced vehicular emissions (a 38 per cent reduction in daily flux compared to pre-COVID level) despite more cooking (a 23 per cent increase) and metabolic breathing (a 29 per cent increase) at neighbourhood scale (Velasco, 2021) and considerably lessened marine traffic in Western Singapore Straits (Ju & Hargreaves, 2021).

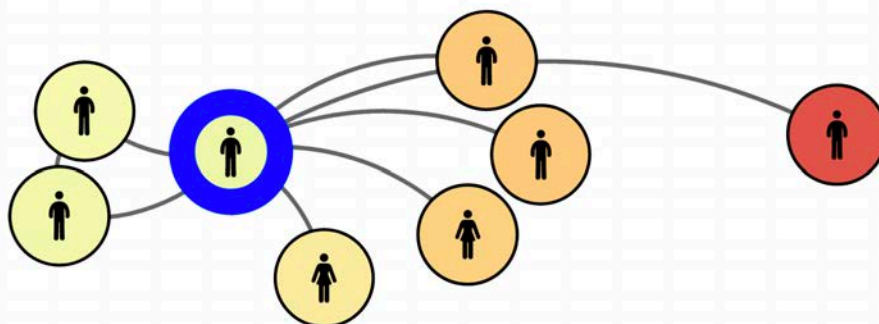
However, there were concerns about the increase in waste generation, particularly during the circuit breaker period, which saw a 3 per cent rise, driven by the surge in online shopping and food delivery (Fan et al., 2021). Research also highlighted the need for more sustainable waste management practices, especially from the consumer perspective of plastic use and recycling habits (Z. Chen & Tan, 2021).

The prolonged lockdown changed people's interaction with the environment. There was an increased demand for urban green spaces, as evidenced by a rise in park visitorship after the pandemic (Lu et al., 2021; K. K. L. Yap et al., 2022). This highlights the potential post-pandemic psychological and physical health benefits of green spaces in offsetting the negative neuropsychological impact of busy urban environments (Olszewska-Guizzo, Fogel, et al., 2021; Olszewska-Guizzo, Mukoyama, et al., 2021).

# Conclusion

The COVID-19 pandemic has had significant impacts on Singapore across multiple domains, including society, education, the economy and the environment, with sweeping healthcare and institutional responses deployed to manage the pandemic. Through extensive research efforts, the Singaporean government and academic institutions have made significant contributions to our understanding of the pandemic and effective responses to mitigate its effects. Comparative studies, particularly with other East Asian economies and ASEAN countries, have helped to shed light on Singapore's strengths and weaknesses in handling the crisis. Nonetheless, the pandemic has also exposed gaps in our knowledge and preparedness for public health emergencies. Despite the significant research efforts in COVID-related research in Singapore, there are still notable research gaps that need to be addressed. Firstly, research on the risk factors of infection has been limited and there is still much to be understood about why certain populations are more susceptible to infection than others. It is critical to identify the specific health and social risks to prepare for future pandemics. Secondly, there is a lack of research on the socio-economic consequences of COVID-19 policy responses on individuals and businesses, particularly on vulnerable segments of the population. Meanwhile, the effectiveness of fiscal measures in assisting families and businesses has yet to be studied in detail. Finally, there is limited research on the impact of COVID-19 on early childhood development, which is important for developing effective policies and interventions to support children and families. Addressing these research gaps will offer a more holistic understanding of the challenges posed by a public health and economic crisis, and facilitate the development of effective policies and interventions.

With Singapore having established a new normal in which COVID-19 is endemic, it is now critical to focus on transitioning towards a more sustainable and resilient future post pandemic, especially given the other global challenges facing Singapore, such as disrupted global supply chains and climate change. It is equally important that the government and society address the inequalities exposed by the pandemic, particularly in the areas of health equity, job security and income equality, so that we can better prepare ourselves for future crises, while promoting long-term sustainability and prosperity for all.



# References

- Abdullah, W. J., & Kim, S. (2020). Singapore's Responses to the COVID-19 Outbreak: A Critical Assessment. *The American Review of Public Administration*, 50(6–7), 770–776. <https://doi.org/10.1177/0275074020942454>
- Abidin, C. (2021). Singaporean Influencers and Covid-19 on Instagram Stories. *Celebrity Studies*, 12(4), 693–698. <https://doi.org/10.1080/19392397.2021.1967604>
- Agarwal, S., Huang, P., Luo, C., Qin, Y., & Zhan, C. (2021). Assessment of Online Food Ordering and Delivery in Singapore During the COVID-19 Pandemic. *JAMA Network Open*, 4(9), e2126466. <https://doi.org/10.1001/jamanetworkopen.2021.26466>
- Ahmed, S., Chen, V. H. H., & Chib, A. I. (2021). Xenophobia in the Time of a Pandemic: Social Media Use, Stereotypes, and Prejudice against Immigrants during the COVID-19 Crisis. *International Journal of Public Opinion Research*, 33(3), 637–653. <https://doi.org/10.1093/ijpor/edab014>
- Ahmed, S., & Rasul, M. E. (2022). Social Media News Use and COVID-19 Misinformation Engagement: Survey Study. *Journal of Medical Internet Research*, 24(9), e38944. <https://doi.org/10.2196/38944>
- Ain Shahrier, N. (2022). Contagion effects in ASEAN-5 exchange rates during the Covid-19 pandemic. *The North American Journal of Economics and Finance*, 62, 101707. <https://doi.org/10.1016/j.najef.2022.101707>
- Aloweni, F., Ayre, T. C., Teo, I., Tan, H. K., & Lim, S. H. (2022). A year after COVID-19: Its impact on nurses' psychological well-being. *Journal of Nursing Management*, 30(7), 2585–2596. <https://doi.org/10.1111/jonm.13814>
- An, B. Y., & Tang, S.-Y. (2020). Lessons From COVID-19 Responses in East Asia: Institutional Infrastructure and Enduring Policy Instruments. *American Review of Public Administration*.
- Au-Yong, P.-S., Peh, W.-M., Koh, F.-X., Teo, L.-M., Ng, S.-P., Tan, A.-N., Ng, A.-H., & Chew, M.-H. (2022). Perceptions of healthcare workers in high-risk areas of a Singapore hospital during COVID-19: A cross-sectional study. *Singapore Medical Journal*, 63(9), 514. <https://doi.org/10.11622/smedj.2021046>
- Aziz, M. I. A., Ahmad, N., Zichu, J., & Nor, S. M. (2022). The Impact of COVID-19 on the Connectedness of Stock Index in ASEAN+3 Economies. *Mathematics*, 10(9), 1417. <https://doi.org/10.3390/math10091417>
- Baker, M. G., Wilson, N., & Blakely, T. (2020). Elimination could be the optimal response strategy for covid-19 and other emerging pandemic diseases. *BMJ*, m4907. <https://doi.org/10.1136/bmj.m4907>
- Billett, S., Leow, A., Chua, S., & Le, A. H. (2022). Changing attitudes about online continuing education and training: A Singapore case study. *Journal of Adult and Continuing Education*, 147797142210843. <https://doi.org/10.1177/14779714221084346>
- Binedell, T., Subburaj, K., Wong, Y., & Blessing, L. T. M. (2020). Leveraging Digital Technology to Overcome Barriers in the Prosthetic and Orthotic Industry: Evaluation of its Applicability and Use During the COVID-19 Pandemic. *JMIR Rehabilitation and Assistive Technologies*, 7(2), e23827. <https://doi.org/10.2196/23827>
- Cai, S., & Gou, Z. (2022). Impact of COVID-19 on the energy consumption of commercial buildings: A case study in Singapore. *Energy and Built Environment*, S2666123322000812. <https://doi.org/10.1016/j.enbenv.2022.11.004>
- Chan, L. G., & Kuan, B. (2020). Mental health and holistic care of migrant workers in Singapore during the COVID-19 pandemic. *Journal of Global Health*, 10(2), 020332–020332. <https://doi.org/10.7189/jogh.10.020332>
- Chan, Z. Y., Lim, C. F., Leow, J. L., Chium, F. Y., Lim, S. W., Tong, C. H. M., Zhou, J. J. X., Tsi, M. M. Y., Tan, R. Y. C., & Chew, L. S. T. (2022). Using the technology acceptance model to examine acceptance of telemedicine by cancer patients in an ambulatory care setting. *Proceedings of Singapore Healthcare*, 31, 201010582211045. <https://doi.org/10.1177/20101058221104578>
- Chattoraj, D. (2022). “We Are All Migrant Workers” Commonality of Bangladeshi Migrants' Experiences in Singapore Amidst COVID-19. *International Journal of Asia Pacific Studies*, 18(2), 9–36. <https://doi.org/10.21315/ijaps2022.18.2.2>
- Chen, H., Shi, L., Zhang, Y., Wang, X., & Sun, G. (2021). A cross-country core strategy comparison in China, Japan, Singapore and South Korea during the early COVID-19 pandemic. *Globalization and Health*, 17(1), 22. <https://doi.org/10.1186/s12992-021-00672-w>
- Chen, M., Mohd Said, N., Mohd Rais, N. C., Ho, F., Ling, N., Chun, M., Ng, Y. S., Eng, W. N., Yao, Y., Korc-Grodzicki, B., & Pang, A. (2022). Remaining Agile in the COVID-19 pandemic healthcare landscape – How we adopted a hybrid telemedicine Geriatric Oncology care model in an academic tertiary cancer center. *Journal of Geriatric Oncology*, 13(6), 856–861. <https://doi.org/10.1016/j.jgo.2022.04.006>
- Chen, Z., & Tan, A. (2021). Exploring the circular supply chain to reduce plastic waste in Singapore. *Logforum*, 17(2), 271–286. <https://doi.org/10.17270/J.LOG.2021.564>
- Cheng, C. Y. L., & Jiang, N. (2023). How Community-Based Eldercare Services Adapt in Response to Covid-19 Restrictions: Evidence from Singapore. *Journal of Gerontological Social Work*, 66(2), 208–220. <https://doi.org/10.1080/01634372.2022.2083282>
- Cheng, G., Gao, S. Y., Yuan, Y., Zhang, C., & Zheng, Z. (2022). On the Test Accuracy and Effective Control of the COVID-19 Pandemic: A Case Study in Singapore. *INFORMS Journal on Applied Analytics*, 52(6), 524–538. <https://doi.org/10.1287/inte.2022.1117>



- Chew, E. Y. H., Ong, Z. L., Glass, G. F., & Chan, E.-Y. (2022). '24/7' Caregiving: A Qualitative Analysis of an Emerging Phenomenon of Interest in Caregiving. *International Journal of Environmental Research and Public Health*, 19(24), 17046. <https://doi.org/10.3390/ijerph192417046>
- Chew, N. W. S., Lee, G. K. H., Tan, B. Y. Q., Jing, M., Goh, Y., Ngiam, N. J. H., Yeo, L. L. L., Ahmad, A., Ahmed Khan, F., Napoleon Shanmugam, G., Sharma, A. K., Komalkumar, R. N., Meenakshi, P. V., Shah, K., Patel, B., Chan, B. P. L., Sunny, S., Chandra, B., Ong, J. J. Y., ... Sharma, V. K. (2020). A multinational, multicentre study on the psychological outcomes and associated physical symptoms amongst healthcare workers during COVID-19 outbreak. *Brain, Behavior, and Immunity*, 88, 559–565. <https://doi.org/10.1016/j.bbi.2020.04.049>
- Chi, X., Hua, J., Hua, S., Ren, X., & Yang, S. (2022). Assessing the Impacts of Human Activities on Air Quality during the COVID-19 Pandemic through Case Analysis. *Atmosphere*, 13(2), 181. <https://doi.org/10.3390/atmos13020181>
- Chiew, C. J., Premikha, M., Chong, C. Y., Wei, W. E., Ong, B., Lye, D. C., Heng, D., Lee, V. J., & Tan, K. B. (2023). Effectiveness of primary series and booster vaccination against SARS-CoV-2 infection and hospitalisation among adolescents aged 12–17 years in Singapore: A national cohort study. *The Lancet Infectious Diseases*, 23(2), 177–182. [https://doi.org/10.1016/S1473-3099\(22\)00573-4](https://doi.org/10.1016/S1473-3099(22)00573-4)
- Chong, G. T. F. (2022). Teledental Consultations Using a Messaging Application during the COVID-19 Pandemic: Experience from a Singapore COVID-19 Community Care Facility. *Proceedings of Singapore Healthcare*, 31, 201010582110414. <https://doi.org/10.1177/20101058211041411>
- Chow, A., Teo, S. H., Kong, J. W., Lee, S., Heng, Y. K., van Steensel, M., & Smith, H. (2022). Patients' Experiences of Telemedicine for Their Skin Problems: Qualitative Study. *JMIR Dermatology*, 5(1), e24956. <https://doi.org/10.2196/24956>
- Chua, B. H., & Wong, M. (2020). Desiring political opposition beyond COVID-19 pandemic in Singapore. *Inter-Asia Cultural Studies*, 21(4), 495–505. <https://doi.org/10.1080/14649373.2020.1832298>
- Chua, C. H., Seow, F. C., Tang, F. M., & Lim, L. M. (2022). Factors affecting telepractice use in COVID-19. *Proceedings of Singapore Healthcare*, 31, 201010582210741. <https://doi.org/10.1177/20101058221074120>
- Chua, G., Yuen, K. F., Wang, X., & Wong, Y. D. (2021). The Determinants of Panic Buying during COVID-19. *International Journal of Environmental Research and Public Health*, 18(6), 3247. <https://doi.org/10.3390/ijerph18063247>
- Chua, W. L., Ooi, S. L., Chan, G. W. H., Lau, T. C., & Liaw, S. Y. (2022). The Effect of a Sepsis Interprofessional Education Using Virtual Patient Telesimulation on Sepsis Team Care in Clinical Practice: Mixed Methods Study. *Journal of Medical Internet Research*, 24(4), e35058. <https://doi.org/10.2196/35058>
- Chung, G., Lanier, P., & Wong, P. Y. J. (2022). Mediating Effects of Parental Stress on Harsh Parenting and Parent-Child Relationship during Coronavirus (COVID-19) Pandemic in Singapore. *Journal of Family Violence*, 37(5), 801–812. <https://doi.org/10.1007/s10896-020-00200-1>
- Chung, G., Rodriguez, M., Lanier, P., & Gibbs, D. (2022). Text-Mining Open-Ended Survey Responses Using Structural Topic Modeling: A Practical Demonstration to Understand Parents' Coping Methods During the COVID-19 Pandemic in Singapore. *Journal of Technology in Human Services*, 40(4), 296–318. <https://doi.org/10.1080/15228835.2022.2036301>
- Chung, G. S. K., Chan, X. W., Lanier, P., & Wong, P. Y. J. (2023). Associations between Work–Family Balance, Parenting Stress, and Marital Conflicts during COVID-19 Pandemic in Singapore. *Journal of Child and Family Studies*, 32(1), 132–144. <https://doi.org/10.1007/s10826-022-02490-z>
- Duffy, A., & Tan, N. N. (2022). Dubious News: The Social Processing of Uncertain Facts in Uncertain Times. *Digital Journalism*, 10(3), 395–411. <https://doi.org/10.1080/21670811.2021.1953390>
- Dutta, M. J. (2021a). Migrant health as a human right amidst COVID-19: A culture-centered approach. *International Journal of Human Rights in Healthcare*, 14(3), 223–239. <https://doi.org/10.1108/IJHRH-09-2020-0078>
- Dutta, M. J. (2021b). Neoliberal Governmentality and Low-Wage Migrant Labour in India and Singapore. *Journal of Creative Communications*, 16(2), 139–152. <https://doi.org/10.1177/09732586211002927>
- Dutta, M. J., & Rahman, Md. M. (2022). The city eats the worker: Migrant negotiations of COVID-19 and resistance amidst the COVID-19 crisis. *Consumption Markets & Culture*, 1–16. <https://doi.org/10.1080/10253866.2022.2152443>
- Fan, Y. V., Jiang, P., Hemzal, M., & Klemeš, J. J. (2021). An update of COVID-19 influence on waste management. *Science of The Total Environment*, 754, 142014. <https://doi.org/10.1016/j.scitotenv.2020.142014>
- Feitelson, E., Plaut, P., Salzberger, E., Shmueli, D., Altshuler, A., Amir, S., & Ben-Gal, M. (2022). Learning from Others' Disasters? A Comparative Study of SARS/MERS and COVID-19 Responses in Five Polities. *International Journal of Disaster Risk Reduction*, 74, 102913. <https://doi.org/10.1016/j.ijdrr.2022.102913>
- Fernandez, D. F. D., Phoon, Y. L., Soon, M. M. L., & Tiow Shen, C. (2022). Exploration of Factors Influencing Nurses' Preparedness and Response to the COVID-19 Outbreak. *SAGE Open Nursing*, 8, 237796082211421. <https://doi.org/10.1177/23779608221142159>
- Fung, F. M., & Lam, Y. (2020). How COVID-19 Disrupted Our "Flipped" Freshman Organic Chemistry Course: Insights Gained from Singapore. *Journal of Chemical Education*, 97(9), 2573–2580. <https://doi.org/10.1021/acs.jchemed.0c00590>

- Gan, W. H., & Koh, D. (2021). COVID-19 and Return-To-Work for the Construction Sector: Lessons From Singapore. *Safety and Health at Work*, *12*(2), 277–281. <https://doi.org/10.1016/j.shaw.2021.04.001>
- Garavan, T. N., Sheerin, C., Koukpaki, S., O'Brien, F., Chami-Malaeb, R., MacKenzie, C., & Buckley, J. (2022). Strategic talent management in hotels during COVID-19: Upper echelons and dynamic attention-based perspectives. *International Journal of Contemporary Hospitality Management*. <https://doi.org/10.1108/IJCHM-04-2022-0516>
- Geber, S., & Ho, S. S. (2022). Examining the cultural dimension of contact-tracing app adoption during the COVID-19 pandemic: A cross-country study in Singapore and Switzerland. *Information, Communication & Society*, 1–21. <https://doi.org/10.1080/1369118X.2022.2082880>
- Goggin, G. (2020). COVID-19 apps in Singapore and Australia: Reimagining healthy nations with digital technology. *Media International Australia*, *177*(1), 61–75. <https://doi.org/10.1177/1329878X20949770>
- Goh, C. E., Lim, L. Z., Müller, A. M., Wong, M. L., & Gao, X. (2022). When e-learning takes centre stage amid COVID-19: Dental educators' perspectives and their future impacts. *European Journal of Dental Education*, *26*(3), 506–515. <https://doi.org/10.1111/eje.12727>
- Goh, H. H., Wong, H. M., & Kwek, D. (2023). Home-based learning during school closure in Singapore: Perceptions from the language classrooms. *Educational Research for Policy and Practice*. <https://doi.org/10.1007/s10671-023-09329-4>
- Goh, H. S., Tan, V., Lee, C.-N., Zhang, H., & Devi, M. K. (2021). Nursing Home's Measures during the COVID-19 Pandemic: A Critical Reflection. *International Journal of Environmental Research and Public Health*, *19*(1), 75. <https://doi.org/10.3390/ijerph19010075>
- Goh, S. N., Fan, G., Cheng, S., & Khaing, N. (2022). COVID 19 pandemic: Impact of changes experienced on social workers' professional quality of life in Singapore. *Social Work in Health Care*, *61*(4), 298–322. <https://doi.org/10.1080/00981389.2022.2092582>
- Goh, Z. H., Tandoc, E. C., & Chan, V. X. (2022). Alone and lonely? How physical and perceived isolation can lead to problematic internet use. *Behaviour & Information Technology*, 1–13. <https://doi.org/10.1080/0144929X.2022.2134825>
- Gorny, A. W., Bagdasarian, N., Koh, A. H. K., Lim, Y. C., Ong, J. S. M., Ng, B. S. W., Hooi, B., Tam, W. J., Kagda, F. H., Chua, G. S. W., Yong, M., Teoh, H. L., Cook, A. R., Sethi, S., Young, D. Y., Loh, T., Lim, A. Y. T., Aw, A. K.-L., Mak, K. S. W., & Fisher, D. (2021). SARS-CoV-2 in migrant worker dormitories: Geospatial epidemiology supporting outbreak management. *International Journal of Infectious Diseases*, *103*(Journal Article), 389–394. <https://doi.org/10.1016/j.ijid.2020.11.148>
- Gottipati, S., & Shankararaman, V. (2021). Rapid Transition of a Technical Course from Face-to-Face to Online. *Communications of the Association for Information Systems*, *48*, 7–14. <https://doi.org/10.17705/1CAIS.04802>
- Gurram, M. K., Wang, M. X., Wang, Y.-C., & Pang, J. (2022). Impact of urbanisation and environmental factors on spatial distribution of COVID-19 cases during the early phase of epidemic in Singapore. *Scientific Reports*, *12*(1), 9758. <https://doi.org/10.1038/s41598-022-12941-8>
- Hanakata, N. C., & Bignami, F. (2022). Platform Urbanization, its recent acceleration, and implications on citizenship. The case of Singapore. *Citizenship Studies*, 1–21. <https://doi.org/10.1080/13621025.2022.2077568>
- Haroon, S., Voo, T. C., Chua, H., Tan, G. L., & Lau, T. (2022). Telemedicine and Haemodialysis Care during the COVID-19 Pandemic: An Integrative Review of Patient Safety, Healthcare Quality, Ethics and the Legal Considerations in Singapore Practice. *International Journal of Environmental Research and Public Health*, *19*(9), 5445. <https://doi.org/10.3390/ijerph19095445>
- He, Y., Wong, Y. W. Y., Ngeow, A. J. H., Sim, E. Y., Cherg, B. P. Z., Arunachalam, S., Ho, S. K. Y., Tan, W. C., & Mok, U. S. (2022). Preparation and consideration for establishment of an isolation maternity unit in a tertiary hospital during COVID-19 pandemic. *BMC Pregnancy and Childbirth*, *22*(1), 317. <https://doi.org/10.1186/s12884-022-04643-w>
- Hildon, Z. J.-L., Panchapakesan, C., Hasan, M. T., Khaled, N., Chan, A. Y., Tripathi, S., Wong, M. C. P., Lwin, M. O., I-Cheng, M. C., & Afsana, K. (2022). Exploring theory-based behavioral interventions promoting COVID-19 prevention and healthcare-seeking for migrant worker men in Singapore: A qualitative study. *BMC Public Health*, *22*(1), 1–2113. <https://doi.org/10.1186/s12889-022-14488-9>
- Ho, C.-M. (2023). Research on interaction of innovation spillovers in the AI, Fin-Tech, and IoT industries: Considering structural changes accelerated by COVID-19. *Financial Innovation*, *9*(1), 7. <https://doi.org/10.1186/s40854-022-00403-z>
- Ho, Y.-C. L., Chew, M. S.-L., Mahirah, D., & Thumboo, J. (2022). Family Resilience and Psychological Responses to COVID-19: A Study of Concordance and Dyadic Effects in Singapore Households. *Frontiers in Psychology*, *13*, 770927. <https://doi.org/10.3389/fpsyg.2022.770927>
- Hu, Y., Ow Yong, J. Q. Y., Chng, M.-L. C., Li, Z., & Goh, Y.-S. (2022). Exploring undergraduate nursing students' experiences towards home-based learning as pedagogy during the COVID-19 pandemic: A descriptive qualitative exploration. *BMC Nursing*, *21*(1), 13. <https://doi.org/10.1186/s12912-021-00788-9>
- Ju, Y., & Hargreaves, C. A. (2021). The impact of shipping CO2 emissions from marine traffic in Western Singapore Straits during COVID-19. *Science of The Total Environment*, *789*, 148063. <https://doi.org/10.1016/j.scitotenv.2021.148063>
- Kakinuma, Y. (2022). Nexus between Southeast Asian stock markets, bitcoin and gold: Spillover effect before and during the COVID-19 pandemic. *Journal of Asia Business Studies*, *16*(4), 693–711. <https://doi.org/10.1108/JABS-02-2021-0050>

- Karim, S., Naz, F., Naeem, M. A., & Vigne, S. A. (2022). Is FinTech providing effective solutions to Small and Medium Enterprises (SMEs) in ASEAN countries? *Economic Analysis and Policy*, 75, 335–344. <https://doi.org/10.1016/j.eap.2022.05.019>
- Kaur-Gill, S. (2020). The COVID-19 Pandemic and Outbreak Inequality: Mainstream Reporting of Singapore's Migrant Workers in the Margins. *Frontiers in Communication*, 5, 65. <https://doi.org/10.3389/fcomm.2020.00065>
- Kaur-Gill, S. (2022). Race-making of the COVID-19 outbreak in early mainstream frames: The production of the epidemic(ed) transnational citizen. *Journal of Applied Communication Research*, 50(sup1), S46–S52. <https://doi.org/10.1080/00909882.2022.2079919>
- Kee, T., Gan, V. H., Chung, J. S., Tee, P. S., Lu, Y. M., Chan, L. P., Cheong, E. H., Lee, P. H., Yong, J. H., Ho, Q. Y., Thangaraju, S., Foo, F., Kwan, N., Ng, E., Xia, H., Lee, C., Boey, S., Foo, M., & Tan, C. S. (2020). Managing a Renal Transplant Programme During the COVID-19 Pandemic: Practical Experience from a Singapore Transplant Centre. *Annals of the Academy of Medicine, Singapore*, 49(9), 652–660. <https://doi.org/10.47102/annals-acadmedsg.2020316>
- Khaing, N. E. E., Lim, C. S., Soon, S. P., & Oh, H. C. (2022). Prevalence and correlates of psychological distress and coronavirus anxiety among hospital essential services workers in Singapore. *Annals of the Academy of Medicine, Singapore*, 51(5), 283–291. <https://doi.org/10.47102/annals-acadmedsg.202219>
- Khondker, H. H. (2021). State and COVID-19 Response in the Asian Tiger Economies: Hong Kong, Taiwan and Singapore. *Comparative Sociology*, 20(6), 695–717. <https://doi.org/10.1163/15691330-bja10043>
- Kim, H. K., & Tandoc, E. C. (2022a). Consequences of Online Misinformation on COVID-19: Two Potential Pathways and Disparity by eHealth Literacy. *Frontiers in Psychology*, 13, 783909. <https://doi.org/10.3389/fpsyg.2022.783909>
- Kim, H. K., & Tandoc, E. C. (2022b). Wear or Not to Wear a Mask? Recommendation Inconsistency, Government Trust and the Adoption of Protection Behaviors in Cross-Lagged TPB Models. *Health Communication*, 37(7), 833–841. <https://doi.org/10.1080/10410236.2020.1871170>
- Kim, S., Goh, Y., & Kang, J. H. B. (2022). Moving toward a common goal via cross-sector collaboration: Lessons learned from SARS to COVID-19 in Singapore. *Globalization and Health*, 18(1), 82. <https://doi.org/10.1186/s12992-022-00873-x>
- Kim, S., Koh, K., & Zhang, X. (2022). Short-term impact of COVID-19 on consumption spending and its underlying mechanisms: Evidence from Singapore. *Canadian Journal of Economics/Revue Canadienne d'économique*, 55(S1), 115–134. <https://doi.org/10.1111/caje.12538>
- Ko, P.-C., & Kang, S.-H. (2020). Singaporean Families' Adaptation and Resilience During the COVID-19 Global Pandemic. *Journal of Comparative Family Studies*, 51(3–4), 385–398. <https://doi.org/10.3138/jcfs.51.3-4.013>
- Koh, T. J. W., Ling, A. H. Z., Chiang, C. L. L., Lee, G. S. J., Tay, H. S. E., & Yi, H. (2021). Attitudes towards COVID-19 precautionary measures and willingness to work during an outbreak among medical students in Singapore: A mixed-methods study. *BMC Medical Education*, 21(1), 317. <https://doi.org/10.1186/s12909-021-02762-0>
- Koh, Y., Lee, C., Chua, M. T., Phoon, B. S. M., Cheung, N. M. T., & Chan, G. W. H. (2022). Medical and nursing students' perceptions of online learning and pandemic preparedness during COVID-19 in Singapore. *The Asia Pacific Scholar*, 7(3), 51–56. <https://doi.org/10.29060/TAPS.2022-7-3/SC2738>
- Kok, T. W. K., Chong, S. J., Yau, W. K. J., Raj Kumar, P., & Chua, S. B. R. (2022). Nationwide implementation of a centralised telemedicine platform in Singapore to fight the COVID-19 pandemic. *Journal of Telemedicine and Telecare*, 1357633X2211228. <https://doi.org/10.1177/1357633X221122890>
- Kong, J. S. M., Teo, B. S., Lee, Y. J., Pabba, A. B., Lee, E. J. D., & Sng, J. C. G. (2021). Virtual Integrated Patient: An AI supplementary tool for second-year medical students. *The Asia Pacific Scholar*, 6(3), 87–90. <https://doi.org/10.29060/TAPS.2021-6-3/SC2394>
- Koo, J. R., Cook, A. R., Lim, J. T., Tan, K. W., & Dickens, B. L. (2022). Modelling the Impact of Mass Testing to Transition from Pandemic Mitigation to Endemic COVID-19. *Viruses*, 14(5), 967. <https://doi.org/10.3390/v14050967>
- Kwan, C. Y. (2021). Design, reporting, and broader impact: COVID-19 budgeting in Singapore. *Policy Design and Practice*, 1–15. <https://doi.org/10.1080/25741292.2021.1882732>
- Kwan, J. (2022). Academic burnout, resilience level, and campus connectedness among undergraduate students during the Covid-19 pandemic: Evidence from Singapore. *Journal of Applied Learning & Teaching*, 5(Special Issue). <https://doi.org/10.37074/jalt.2022.5.s1.7>
- Kwan, J. Y. (2022). 'Democracy and Active Citizenship Are Not Just About the Elections': Youth Civic and Political Participation During and Beyond Singapore's Nine-day Pandemic Election (GE2020). *YOUNG*, 30(3), 247–264. <https://doi.org/10.1177/11033088211059595>
- Lam, S. S. W., Pourghaderi, A. R., Abdullah, H. R., Nguyen, F. N. H. L., Siddiqui, F. J., Ansah, J. P., Low, J. G., Matchar, D. B., & Ong, M. E. H. (2022). An Agile Systems Modeling Framework for Bed Resource Planning During COVID-19 Pandemic in Singapore. *Frontiers in Public Health*, 10, 714092. <https://doi.org/10.3389/fpubh.2022.714092>
- Lau, J., Tan, D. H.-Y., Wong, G. J., Lew, Y.-J., Chua, Y.-X., Low, L.-L., Ho, H.-K., Kwek, T.-S., Toh, S.-A. E.-S., & Tan, K.-K. (2021). Prepared and highly committed despite the risk of COVID-19 infection: A cross-sectional survey of primary care physicians' concerns and coping strategies in Singapore. *BMC Family Practice*, 22(1), 22. <https://doi.org/10.1186/s12875-021-01370-7>

- Lee, C., Lee, J. M., & Liu, Y. (2021). Catalysing innovation and digital transformation in combating the Covid-19 pandemic: Whole-of government collaborations in ICT, R&D, and business digitization in Singapore. *Public Money & Management*, 1–9. <https://doi.org/10.1080/09540962.2021.1966197>
- Lee, E. P. X., Man, R. E. K., Gan, T. L. A., Fenwick, E. K., Aravindhan, A., Ho, K. C., Sung, S. C., Wong, T. Y., Ho, C. S. H., Gupta, P., & Lamoureux, E. L. (2022). The longitudinal psychological, physical activity, and financial impact of a COVID-19 lockdown on older adults in Singapore: The PIONEER-COVID population-based study. *International Journal of Geriatric Psychiatry*, 37(1), gps.5645. <https://doi.org/10.1002/gps.5645>
- Lee, J. K., Lin, L., & Kang, H. (2021). The Influence of Normative Perceptions on the Uptake of the COVID-19 TraceTogether Digital Contact Tracing System: Cross-sectional Study. *JMIR Public Health and Surveillance*, 7(11), e30462. <https://doi.org/10.2196/30462>
- Lee, P. N., How, J. A., & Xu, T. (2022). Exploring the impacts of COVID-19 on the lifestyles of community-living adults in Singapore: A qualitative study. *Australian Occupational Therapy Journal*, 69(5), 546–558. <https://doi.org/10.1111/1440-1630.12812>
- Lee, S., Yamamoto, M., & Tandoc, E. C. (2022). Why People Who Know Less Think They Know about COVID-19: Evidence from US and Singapore. *Journalism & Mass Communication Quarterly*, 99(1), 44–68. <https://doi.org/10.1177/10776990211049460>
- Lee, T., Cheng, D. Z., Foo, F.-J., Sivarajah, S. S., Ho, L. M. L., Aw, D., Chong, C. X. Z., Ng, J.-L., Tan, W. J. H., & Koh, F. H. (2022). Did the COVID-19 lockdown result in a delay of colorectal cancer presentation and outcomes? A single centre review. *Langenbeck's Archives of Surgery*, 407(2), 739–745. <https://doi.org/10.1007/s00423-022-02448-1>
- Lee, T., & Lee, H. (2020). Tracing surveillance and auto-regulation in Singapore: 'Smart' responses to COVID-19. *Media International Australia*, 177(1), 47–60. <https://doi.org/10.1177/1329878X20949545>
- Lew, C. C. H., Ng, P. S., Wong, K. W., Puah, S. H., Lim, C. D. Q., Kayambu, G., Li, A. Y., Toh, C. H., Venkatachalam, J., & Mukhopadhyay, A. (2022). Nutrition support practices for critically ill patients with severe acute respiratory syndrome coronavirus-2: A multicentre observational study in Singapore. *Annals of the Academy of Medicine, Singapore*, 51(6), 329–340. <https://doi.org/10.47102/annals-acadmedsg.202231>
- Li, X., Zhou, Y., Wong, Y. D., Wang, X., & Yuen, K. F. (2021). What influences panic buying behaviour? A model based on dual-system theory and stimulus-organism-response framework. *International Journal of Disaster Risk Reduction*, 64, 102484. <https://doi.org/10.1016/j.ijdrr.2021.102484>
- Li, Y., Zhu, Y., Tan, J. Y. K., Teo, H. C., Law, A., Qu, D., & Luo, W. (2022). The impact of COVID-19 on  $\text{NO}_2$  and  $\text{PM}_{2.5}$  levels and their associations with human mobility patterns in Singapore. *Annals of GIS*, 28(4), 515–531. <https://doi.org/10.1080/19475683.2022.2121855>
- Lim, H. A., Lee, J. S. W., Lim, M. H., Teo, L. P. Z., Sin, N. S. W., Lim, R. W., Chua, S. M., Yeo, J. Q., Ngiam, N. H. W., Tey, A. J.-Y., Tham, C. Y. X., Ng, K. Y. Y., Low, L. L., & Tang, K. W. A. (2022). Bridging Connectivity Issues in Digital Access and Literacy: Reflections on Empowering Vulnerable Older Adults in Singapore. *JMIR Aging*, 5(2), e34764. <https://doi.org/10.2196/34764>
- Lim, J., Leow, Z., Ong, J., Pang, L.-S., & Lim, E. (2021). Effects of Web-Based Group Mindfulness Training on Stress and Sleep Quality in Singapore During the COVID-19 Pandemic: Retrospective Equivalence Analysis. *JMIR Mental Health*, 8(3), e21757. <https://doi.org/10.2196/21757>
- Lim, J. P., Low, K. Y. H., Lin, N. J. J., Lim, C. Z. Q., Ong, S. W. X., Tan, W. Y. T., Tay, W. C., Tan, H. N., Young, B. E., Lye, D. C. B., & Lim, W. S. (2021). Predictors for development of critical illness amongst older adults with COVID-19: Beyond age to age-associated factors. *Archives of Gerontology and Geriatrics*, 94, 104331. <https://doi.org/10.1016/j.archger.2020.104331>
- Lim, J. T., Chew, L. Z. X., Choo, E. L. W., Dickens, B. S. L., Ong, J., Aik, J., Ng, L. C., & Cook, A. R. (2021). Increased Dengue Transmissions in Singapore Attributable to SARS-CoV-2 Social Distancing Measures. *The Journal of Infectious Diseases*, 223(3), 399–402. <https://doi.org/10.1093/infdis/jiaa619>
- Lim, J. T., Dickens, B. L., Ong, J., Aik, J., Lee, V. J., Cook, A. R., & Ng, L. C. (2021). Decreased dengue transmission in migrant worker populations in Singapore attributable to SARS-CoV-2 quarantine measures. *Journal of Travel Medicine*, 28(2), taaa228. <https://doi.org/10.1093/jtm/taaa228>
- Lim, S. L., Shahidah, N., Saffari, S. E., Ng, Q. X., Ho, A. F. W., Leong, B. S.-H., Arulanandam, S., Siddiqui, F. J., & Ong, M. E. H. (2021). Impact of COVID-19 on Out-of-Hospital Cardiac Arrest in Singapore. *International Journal of Environmental Research and Public Health*, 18(7), 3646. <https://doi.org/10.3390/ijerph18073646>
- Lin, W. (2022). Atmospheric conditioning: Airport automation, labour and the COVID-19 pandemic. *Transactions of the Institute of British Geographers*, 47(1), 214–228. <https://doi.org/10.1111/tran.12499>
- Ling, F. Y. Y., Zhang, Z., & Yew, A. Y. R. (2022). Impact of COVID-19 Pandemic on Demand, Output, and Outcomes of Construction Projects in Singapore. *Journal of Management in Engineering*, 38(2), 04021097. [https://doi.org/10.1061/\(ASCE\)ME.1943-5479.0001020](https://doi.org/10.1061/(ASCE)ME.1943-5479.0001020)
- Liu, J. C. J., & Tong, E. M. W. (2020). The Relation Between Official WhatsApp-Distributed COVID-19 News Exposure and Psychological Symptoms: Cross-Sectional Survey Study. *Journal of Medical Internet Research*, 22(9), e22142. <https://doi.org/10.2196/22142>
- Liu, Z., Zhu, L., Wang, Y., Zhou, Z., & Guo, Y. (2021). The Correlation between COVID-19 Activities and Climate Factors in Different Climate Types Areas. *Journal of Occupational & Environmental Medicine, Publish Ahead of Print*. <https://doi.org/10.1097/JOM.0000000000002274>

- Lock, H. S., Teng, X. L., Low, Z. X., & Ooi, J. (2022). Success criteria and challenges of mobile radiography in the era of COVID-19 pandemic: A Singapore perspective. *Journal of Medical Imaging and Radiation Sciences*, 53(3), 404–411. <https://doi.org/10.1016/j.jmir.2022.06.007>
- Long, V. J., Koh, W. S., Saw, Y. E., & Liu, J. C. (2021). Vulnerability to rumours during the COVID-19 pandemic in Singapore. *Annals of the Academy of Medicine, Singapore*, 50(3), 232–240. <https://doi.org/10.47102/annals-acadmedsg.2020523>
- Lorenzo, J. S. L., Tam, W. W. S., & Seow, W. J. (2021). Association between air quality, meteorological factors and COVID-19 infection case numbers. *Environmental Research*, 197, 111024. <https://doi.org/10.1016/j.envres.2021.111024>
- Low, J. M., Soo, C. W. T., Phuon, T., Zhong, Y., & Lee, L. Y. (2022). Predicting vaccine hesitancy among parents towards COVID-19 vaccination for their children in Singapore. *Frontiers in Pediatrics*, 10, 994675. <https://doi.org/10.3389/fped.2022.994675>
- Lu, Y., Zhao, J., Wu, X., & Lo, S. M. (2021). Escaping to nature during a pandemic: A natural experiment in Asian cities during the COVID-19 pandemic with big social media data. *Science of The Total Environment*, 777, 146092. <https://doi.org/10.1016/j.scitotenv.2021.146092>
- Lwin, M. O., Lee, S. Y., Panchapakesan, C., & Tandoc, E. (2023). Mainstream News Media's Role in Public Health Communication During Crises: Assessment of Coverage and Correction of COVID-19 Misinformation. *Health Communication*, 38(1), 160–168. <https://doi.org/10.1080/10410236.2021.1937842>
- Lyu, T., Khan, F. A., Sajeed, S. M., Kansal, A., Kansal, M. G., Dhanvijay, S., Tan, R. A., D'Souza, J., Cendana, I., Leong, P., & Tan, C. K. (2021). In-hospital cardiac arrest incidence and outcomes in the era of COVID-19: An observational study in a Singapore hospital. *International Journal of Emergency Medicine*, 14(1), 33. <https://doi.org/10.1186/s12245-021-00356-7>
- Ma, B., Teo, C.-C., & Wong, Y. D. (2022). Consumers' preference for urban last-mile delivery: Effects of value perception and long-term COVID-initiated contextual shifts. *International Journal of Logistics Research and Applications*, 1–22. <https://doi.org/10.1080/13675567.2022.2160434>
- Maati, A., & Švedkauskas, Ž. (2020). Framing the Pandemic and the Rise of the Digital Surveillance State. *Czech Journal of International Relations*, 55(4), 48–71. <https://doi.org/10.32422/mv-cjir.1736>
- Müller, A. M., Goh, C., Lim, L. Z., & Gao, X. (2021). COVID-19 Emergency eLearning and Beyond: Experiences and Perspectives of University Educators. *Education Sciences*, 11(1), 19. <https://doi.org/10.3390/educsci11010019>
- Neo, L. S., Tan, J. Y. C., & Chew, T. W. Y. (2022). The Influence of COVID-19 on Women's Perceptions of Work-Family Conflict in Singapore. *Social Sciences*, 11(2), 73. <https://doi.org/10.3390/socsci11020073>
- Ng, I. Y. H., Lim, S. S., & Pang, N. (2022). Making universal digital access universal: Lessons from COVID-19 in Singapore. *Universal Access in the Information Society*. <https://doi.org/10.1007/s10209-022-00877-9>
- Ng, K. Y. Y., Zhou, S., Tan, S. H., Ishak, N. D. B., Goh, Z. Z. S., Chua, Z. Y., Chia, J. M. X., Chew, E. L., Shwe, T., Mok, J. K. Y., Leong, S. S., Lo, J. S. Y., Ang, Z. L. T., Leow, J. L., Lam, C. W. J., Kwek, J. W., Dent, R., Tuan, J., Lim, S. T., ... Ngeow, J. (2020). Understanding the Psychological Impact of COVID-19 Pandemic on Patients With Cancer, Their Caregivers, and Health Care Workers in Singapore. *JCO Global Oncology*, 6, 1494–1509. <https://doi.org/10.1200/GO.20.00374>
- Ng, L. H. X., & Loke, J. Y. (2021). Analyzing Public Opinion and Misinformation in a COVID-19 Telegram Group Chat. *IEEE Internet Computing*, 25(2), 84–91. <https://doi.org/10.1109/MIC.2020.3040516>
- Ng, O. T., Marimuthu, K., Lim, N., Lim, Z. Q., Thevasagayam, N. M., Koh, V., Chiew, C. J., Ma, S., Koh, M., Low, P. Y., Tan, S. B., Ho, J., Maurer-Stroh, S., Lee, V. J. M., Leo, Y.-S., Tan, K. B., Cook, A. R., & Tan, C. C. (2022). Analysis of COVID-19 Incidence and Severity Among Adults Vaccinated With 2-Dose mRNA COVID-19 or Inactivated SARS-CoV-2 Vaccines With and Without Boosters in Singapore. *JAMA Network Open*, 5(8), e2228900. <https://doi.org/10.1001/jamanetworkopen.2022.28900>
- Ng, P. T. (2021). Timely change and timeless constants: COVID-19 and educational change in Singapore. *Educational Research for Policy and Practice*, 20(1), 19–27. <https://doi.org/10.1007/s10671-020-09285-3>
- Ng, T. M., Ong, S. W. X., Loo, A. Y. X., Tan, S. H., Tay, H. L., Yap, M. Y., Lye, D. C., Lee, T. H., & Young, B. E. (2022). Antibiotic Therapy in the Treatment of COVID-19 Pneumonia: Who and When? *Antibiotics*, 11(2), 184. <https://doi.org/10.3390/antibiotics11020184>
- Ngiam, J. N., Chew, N., Tham, S. M., Beh, D. L.-L., Lim, Z. Y., Li, T. Y. W., Cen, S., Tambyah, P. A., Santosa, A., Sia, C.-H., & Cross, G. B. (2021). Demographic shift in COVID-19 patients in Singapore from an aged, at-risk population to young migrant workers with reduced risk of severe disease. *International Journal of Infectious Diseases*, 103, 329–335. <https://doi.org/10.1016/j.ijid.2020.11.157>
- Ngiam, J. N., Chhabra, S., Goh, W., Sim, M. Y., Chew, N. W., Sia, C.-H., Cross, G. B., & Tambyah, P. A. (2023). Continued demographic shifts in hospitalised patients with COVID-19 from migrant workers to a vulnerable and more elderly local population at risk of severe disease. *International Journal of Infectious Diseases*, 127, 77–84. <https://doi.org/10.1016/j.ijid.2022.12.007>
- Ngiam, N. H. W., Yee, W. Q., Teo, N., Yow, K. S., Soundararajan, A., Lim, J. X., Lim, H. A., Tey, A., Tang, K. W. A., Tham, C. Y. X., Tan, J. P. Y., Lu, S. Y., Yoon, S., Ng, K. Y. Y., & Low, L. L. (2022). Building Digital Literacy in Older Adults of Low Socioeconomic Status in Singapore (Project Wire Up): Nonrandomized Controlled Trial. *Journal of Medical Internet Research*, 24(12), e40341. <https://doi.org/10.2196/40341>

- O'Hara, C. A., & Tan, R. K. J. (2022). Intimate partner violence before and during the COVID-19 lockdown: Findings from a cross-sectional study in Singapore. *Sexual Health, 19*(3), 192–201. <https://doi.org/10.1071/SH21229>
- Oka, P., Thia, B. W. Q., Gunalan, S. Z., Kwan, J. R. Y., Ng, D. X., Aau, W. K., Wee, J. D., & Tan, N. C. (2022). Awareness, Barriers and Concerns of Adolescents Toward the COVID-19 Vaccine: A Cross-Sectional Study in Singapore. *Frontiers in Public Health, 10*, 903152. <https://doi.org/10.3389/fpubh.2022.903152>
- Oliver, S., & Ostwald, K. (2020). Singapore's Pandemic Election: Opposition Parties and Valence Politics in GE2020. *Pacific Affairs, 93*(4), 759–780. <https://doi.org/10.5509/2020934759>
- Olszewska-Guizzo, A., Fogel, A., Escoffier, N., & Ho, R. (2021). Effects of COVID-19-related stay-at-home order on neuropsychophysiological response to urban spaces: Beneficial role of exposure to nature? *Journal of Environmental Psychology, 75*, 101590. <https://doi.org/10.1016/j.jenvp.2021.101590>
- Olszewska-Guizzo, A., Mukoyama, A., Naganawa, S., Dan, I., Husain, S. F., Ho, C. S., & Ho, R. (2021). Hemodynamic Response to Three Types of Urban Spaces before and after Lockdown during the COVID-19 Pandemic. *International Journal of Environmental Research and Public Health, 18*(11), 6118. <https://doi.org/10.3390/ijerph18116118>
- Omar, U. F., Pei Yein, T., & Rajaratnam, V. (2020). Managing hand and reconstructive microsurgery service during COVID-19 pandemic: Singapore experience. *Postgraduate Medical Journal, 96*(1137), 379–383. <https://doi.org/10.1136/postgradmedj-2020-137735>
- Ooi, J. W. L., Er, A. T. W., Chong, C. M., Tsai, K. T., & Chong, M. C. (2022). Knowledge, attitudes and perceptions of radiology healthcare workers during the COVID-19 pandemic. *Proceedings of Singapore Healthcare, 31*, 201010582110158. <https://doi.org/10.1177/20101058211015801>
- Ozdemir, S., Ng, S., Chaudhry, I., & Finkelstein, E. A. (2020). Adoption of Preventive Behaviour Strategies and Public Perceptions About COVID-19 in Singapore. *International Journal of Health Policy and Management, 1*. <https://doi.org/10.34172/ijhpm.2020.199>
- Pang, J., Tan, H. N., Mak, T. M., Octavia, S., Maurer-Stroh, S., Sirota, F. L., Chan, M. P. C., Leong, I. Y. O., Koh, V. T. J., Ooi, P. L., Vasoo, S., Fisher, D., Cui, L., Rafman, H., Cutter, J., & Lee, V. J. (2022). Epidemiological, Clinical, and Phylogenetic Characteristics of the First SARS-CoV-2 Transmission in a Nursing Home of Singapore: A Prospective Observational Investigation. *Frontiers in Medicine, 8*, 790177. <https://doi.org/10.3389/fmed.2021.790177>
- Pani, S. K., Lin, N.-H., & RavindraBabu, S. (2020). Association of COVID-19 pandemic with meteorological parameters over Singapore. *Science of The Total Environment, 740*, 140112. <https://doi.org/10.1016/j.scitotenv.2020.140112>
- Peh, H. P., Yee, K., & Mantaring, E. J. N. (2022). Changes in telepractice use and perspectives among speech and language therapists in Singapore through the COVID-19 pandemic. *International Journal of Language & Communication Disorders, 1460-6984.12823*. <https://doi.org/10.1111/1460-6984.12823>
- Phillips, L. G., Cain, M., Ritchie, J., Campbell, C., Davis, S., Brock, C., Burke, G., Coleman, K., & Joosa, E. (2021). Surveying and resonating with teacher concerns during COVID-19 pandemic. *Teachers and Teaching, 1-18*. <https://doi.org/10.1080/13540602.2021.1982691>
- Priyadharsini, H., & Chiang, J. J. (2020). Embracing telehealth: Supporting young children and families through occupational therapy in Singapore during COVID-19. *World Federation of Occupational Therapists Bulletin, 76*(2), 90–93. <https://doi.org/10.1080/14473828.2020.1822574>
- Radomskaya, V., & Bhati, A. S. (2022). Hawker Centres: A Social Space Approach to Promoting Community Wellbeing. *Urban Planning, 7*(4). <https://doi.org/10.17645/up.v7i4.5658>
- Ramalingam, M. B., Huang, Y., & Lim, P. A. C. (2020). Rehabilitation of a Post-Intensive Care Unit Patient After Severe COVID-19 Pneumonia. *American Journal of Physical Medicine & Rehabilitation, 99*(12), 1092–1095. <https://doi.org/10.1097/PHM.0000000000001606>
- Raman, G., & Peng, J. C.-H. (2021). Electricity consumption of Singaporean households reveals proactive community response to COVID-19 progression. *Proceedings of the National Academy of Sciences, 118*(34), e2026596118. <https://doi.org/10.1073/pnas.2026596118>
- Rangaswamy, E., Chong, Y., & Nawaz, N. (2022). A Study on the Relationship Between the Affordability of Private Residential Property and its Demand in Singapore. *Frontiers in Built Environment, 8*, 796090. <https://doi.org/10.3389/fbuil.2022.796090>
- Rasappan, K., & Oh, J. (2020). Fighting from the COVID-19 Frontline: A Junior Doctor's Perspective on Fear, Duty and Calling. *Malaysian Orthopaedic Journal, 14*(3), 1–3. <https://doi.org/10.5704/MOJ.2011.001>
- Rawat, S., Yan, Y., Wu, A. M., & Vyas, L. (2022). When public administration education switches online: Student perceptions during COVID-19. *Teaching Public Administration, 01447394221119092*. <https://doi.org/10.1177/01447394221119092>
- Reichelt, M., Makovi, K., & Sargsyan, A. (2021). The impact of COVID-19 on gender inequality in the labor market and gender-role attitudes. *European Societies, 23*(sup1), S228–S245. <https://doi.org/10.1080/14616696.2020.1823010>
- Rhodes, C., Kotera, Y., & Lim, H. (2022). Identifying strengths in response to social isolation during the COVID-19 pandemic among pre-university students in Singapore: A thematic enquiry. *British Journal of Guidance & Counselling, 1-12*. <https://doi.org/10.1080/03069885.2022.2079611>

- Rudolph, J., Itangata, L., Tan, S., Kane, M., Thairo, I., & Tan, T. (2021). 'Bittersweet' and 'alienating': An extreme comparison of collaborative autoethnographic perspectives from higher education students, non-teaching staff and faculty during the pandemic in the UK and Singapore. *Journal of University Teaching and Learning Practice*, 18(8). <https://doi.org/10.53761/1.18.8.10>
- Rudolph, J., Tan, S., Crawford, J., & Butler-Henderson, K. (2023). Perceived quality of online learning during COVID-19 in higher education in Singapore: Perspectives from students, lecturers, and academic leaders. *Educational Research for Policy and Practice*, 22(1), 171–191. <https://doi.org/10.1007/s10671-022-09325-0>
- Sadiq, M., Hsu, C.-C., Zhang, Y., & Chien, F. (2021). COVID-19 fear and volatility index movements: Empirical insights from ASEAN stock markets. *Environmental Science and Pollution Research*, 28(47), 67167–67184. <https://doi.org/10.1007/s11356-021-15064-1>
- Schaefer, G. O., & Ballantyne, A. (2022). Ethics of digital contact tracing wearables. *Journal of Medical Ethics*, 48(9), 611–615. <https://doi.org/10.1136/medethics-2020-106958>
- Shah, S., Gui, H., Chua, P. E. Y., Tan, J.-Y. (Benjamin), Suen, L. K., Chan, S. W., & Pang, J. (2022). Factors associated with COVID-19 vaccination intent in Singapore, Australia and Hong Kong. *Vaccine*, 40(21), 2949–2959. <https://doi.org/10.1016/j.vaccine.2022.03.062>
- Sia, A., Tan, P. Y., Wong, J. C. M., Araib, S., Ang, W. F., & Er, K. B. H. (2022). The impact of gardening on mental resilience in times of stress: A case study during the COVID-19 pandemic in Singapore. *Urban Forestry & Urban Greening*, 68, 127448. <https://doi.org/10.1016/j.ufug.2021.127448>
- Sim, J., Shaw, T., Li, S., Courtney, E., Yuen, J., Chiang, J., Nazir, M., Tan, R., & Ngeow, J. (2021). Understanding patients' views and willingness toward the use of telehealth in a cancer genetics service in Asia. *Journal of Genetic Counseling*, 30(6), 1658–1670. <https://doi.org/10.1002/jgc4.1432>
- Sim, S., Teo, S., Kong, J., Lim, Z., Ng, M., & Tang, W. (2021). COVID-19 in Singapore – a case series from primary care. *Singapore Medical Journal*, 62(1), 48–51. <https://doi.org/10.11622/smedj.2020082>
- Singh, B. (2022). Singapore in 2021. *Asian Survey*, 62(1), 153–160. <https://doi.org/10.1525/as.2022.62.1.15>
- Singh, T., Ngoh, C. L., Wong, W. K., & Khan, B. A. (2020). Impact of Telemedicine on Hospitalisation and Mortality Rates in Community-Based Haemodialysis Centres in Singapore During the COVID-19 Pandemic. *Annals of the Academy of Medicine, Singapore*, 49(10), 756–763. <https://doi.org/10.47102/annals-acadmedsg.2020369>
- Soon, T. C., Caleon, I. S., Shaik Kadir, M. B., Chua, J., & Ilham, N. Q. (2023). Navigating challenges during Covid-19 pandemic: Experiences and coping strategies of Singapore students. *Educational and Developmental Psychologist*, 40(1), 63–73. <https://doi.org/10.1080/20590776.2022.2079405>
- Tam, W. W. S., Poon, S. N., Mahendran, R., Kua, E. H., & Wu, X. V. (2021). Impacts of COVID-19 and partial lockdown on family functioning, intergenerational communication and associated psychosocial factors among young adults in Singapore. *BMC Psychiatry*, 21(1), 595. <https://doi.org/10.1186/s12888-021-03599-z>
- Tan, B. Y. Q., Kanneganti, A., Lim, L. J. H., Tan, M., Chua, Y. X., Tan, L., Sia, C. H., Denning, M., Goh, E. T., Purkayastha, S., Kinross, J., Sim, K., Chan, Y. H., & Ooi, S. B. S. (2020). Burnout and Associated Factors Among Health Care Workers in Singapore During the COVID-19 Pandemic. *Journal of the American Medical Directors Association*, 21(12), 1751-1758.e5. <https://doi.org/10.1016/j.jamda.2020.09.035>
- Tan, G. K. S., & Lim, S. S. (2022). Communicative strategies for building public confidence in data governance: Analyzing Singapore's COVID-19 contact-tracing initiatives. *Big Data & Society*, 9(1), 205395172211040. <https://doi.org/10.1177/20539517221104086>
- Tan, J. S. Q., Fung, W., Tan, B. S. W., Low, J. Y., Syn, N. L., Goh, Y. X., & Pang, J. (2021). Association between pet ownership and physical activity and mental health during the COVID-19 "circuit breaker" in Singapore. *One Health*, 13, 100343. <https://doi.org/10.1016/j.onehlt.2021.100343>
- Tan, K. Y. K., Soh, A. S. E., Ong, B. W. L., Chen, M. IC., & Griva, K. (2022). Determining the Prevalence and Correlates of COVID-19 Booster Vaccine Hesitancy in the Singapore Population Following the Completion of the Primary Vaccination Series. *Vaccines*, 10(7), 1088. <https://doi.org/10.3390/vaccines10071088>
- Tan, L. F., Huak, C. Y., Siow, I., Tan, A. J., Venugopalan, P. M., Premkumar, A., Seetharaman, S. K., & Tan, B. Y. Q. (2022). The road to achieving herd immunity: Factors associated with Singapore residents' uptake and hesitancy of the COVID-19 vaccination. *Expert Review of Vaccines*, 21(4), 561–567. <https://doi.org/10.1080/14760584.2022.2021883>
- Tan, M., Straughan, P. T., & Cheong, G. (2022). Information trust and COVID-19 vaccine hesitancy amongst middle-aged and older adults in Singapore: A latent class analysis Approach. *Social Science & Medicine*, 296, 114767. <https://doi.org/10.1016/j.socscimed.2022.114767>
- Tan, R. K. J., Lim, J. M., Neo, P. H. M., & Ong, S. E. (2022). Reinterpretation of Health Information in the Context of an Emerging Infectious Disease: A Digital Focus Group Study. *JMIR Human Factors*, 9(4), e39312. <https://doi.org/10.2196/39312>
- Tan, S. B., Chiu-Shee, C., & Duarte, F. (2022). From SARS to COVID-19: Digital infrastructures of surveillance and segregation in exceptional times. *Cities*, 120, 103486. <https://doi.org/10.1016/j.cities.2021.103486>
- Tan, S. H. X., Ansari, A., Ali, N. M. I., & Yap, A. U. (2021). Simulation design and students' satisfaction with home-based simulation learning in oral health therapy. *Journal of Dental Education*, 85(6), 847–855. <https://doi.org/10.1002/jdd.12576>

- Tan, S., Rudolph, J., Crawford, J., & Butler-Henderson, K. (2022). Emergency remote teaching or andragogical innovation? Higher education in Singapore during the COVID-19 pandemic. *Journal of Applied Learning & Teaching*, 5(Special Issue). <https://doi.org/10.37074/jalt.2022.5.s1.8>
- Tandoc, E. C., & Kim, H. K. (2022). Avoiding real news, believing in fake news? Investigating pathways from information overload to misbelief. *Journalism*, 146488492210907. <https://doi.org/10.1177/14648849221090744>
- Tandoc, E. C., Lee, J. C. B., Lee, S., & Quek, P. J. (2022). Does Length Matter? The Impact of Fact-Check Length in Reducing COVID-19 Vaccine Misinformation. *Mass Communication and Society*, 1–31. <https://doi.org/10.1080/15205436.2022.2155195>
- Tang, C. J., Lin, Y. P., & Chan, E. (2021). 'From Expert to Novice', Perceptions of General Ward Nurses on Deployment to Outbreak Intensive Care Units during the COVID-19 Pandemic: A Qualitative Descriptive Study. *Journal of Clinical Nursing*, jocn.16029. <https://doi.org/10.1111/jocn.16029>
- Tay, J. L. (2022). Online HOPE intervention on help-seeking attitudes and intentions among young adults in Singapore: A randomized controlled trial and process evaluation. *Archives of Psychiatric Nursing*, 41, 286–294. <https://doi.org/10.1016/j.apnu.2022.09.008>
- Tay, L. Y., Lee, S.-S., & Ramachandran, K. (2021). Implementation of Online Home-Based Learning and Students' Engagement During the COVID-19 Pandemic: A Case Study of Singapore Mathematics Teachers. *The Asia-Pacific Education Researcher*, 30(3), 299–310. <https://doi.org/10.1007/s40299-021-00572-y>
- Tay, Y. X., Sng, L. H., Chow, H. C., & Zainulidin, M. R. (2020). Clinical placements for undergraduate diagnostic radiography students amidst the COVID-19 pandemic in Singapore: Preparation, challenges and strategies for safe resumption. *Journal of Medical Imaging and Radiation Sciences*, 51(4), 560–566. <https://doi.org/10.1016/j.jmir.2020.08.012>
- Teo, C. L., Chee, M. L., Koh, K. H., Tseng, R. M. W., Majithia, S., Thakur, S., Gunasekeran, D. V., Nusinovic, S., Sabanayagam, C., Wong, T. Y., Tham, Y.-C., & Cheng, C.-Y. (2021). COVID-19 awareness, knowledge and perception towards digital health in an urban multi-ethnic Asian population. *Scientific Reports*, 11(1), 10795. <https://doi.org/10.1038/s41598-021-90098-6>
- Teo, T. L., Lim, J. H., Wee, C. P. J., & Wong, E. (2021). Attitudes of teaching faculty towards clinical teaching of medical students in an emergency department of a teaching institution in Singapore during the COVID-19 pandemic. *The Asia Pacific Scholar*, 6(3), 67–74. <https://doi.org/10.29060/TAPS.2021-6-3/OA2347>
- Thangaraju, S., Wang, Y., Kee, T., Tee, P. S., Lu, Y. M., Yong, J. H., Ho, Q. Y., Liew, I. T., Foo, F., Kwan, N., Ng, E., He, X., Lee, C., Baey, S., Leong, J., Tan, J., Shirore, R. M., & Jafar, T. H. (2022). Psychological distress and associated factors among kidney transplant recipients and living kidney donors during COVID-19. *BMC Nephrology*, 23(1), 80. <https://doi.org/10.1186/s12882-022-02698-7>
- Thangayah, J. R., Dutta, A., & Ponampalam, R. (2022). Concerned, yet committed: A tertiary hospital healthcare workers' concerns and readiness in the face of the COVID-19 pandemic. *Journal of Emergency Management*, 20(9), 49–60. <https://doi.org/10.5055/jem.0651>
- Th'ng, F., Rao, K. A., Ge, L., Neo, H. N., Molina, J. A. D., Lim, W. Y., & Mao, D. (2022). Longitudinal Study Comparing Mental Health Outcomes in Frontline Emergency Department Healthcare Workers through the Different Waves of the COVID-19 Pandemic. *International Journal of Environmental Research and Public Health*, 19(24), 16878. <https://doi.org/10.3390/ijerph192416878>
- Ung, M., Wan, K. Y. Y., Liu, S. Y., Choo, Y. J., Liew, N. S. W., Shang, Z. A., Khoo, S. S. H., Tay, W. X., Lin, R., & Yi, S. (2022). Alcohol Consumption, Loneliness, Quality of Life, Social Media Usage and General Anxiety before and during the COVID-19 Pandemic in Singapore. *International Journal of Environmental Research and Public Health*, 19(9), 5636. <https://doi.org/10.3390/ijerph19095636>
- Uyheng, J., Ng, L. H. X., & Carley, K. M. (2021). Active, aggressive, but to little avail: Characterizing bot activity during the 2020 Singaporean elections. *Computational and Mathematical Organization Theory*, 27(3), 324–342. <https://doi.org/10.1007/s10588-021-09332-1>
- Vasudevan, A., Ping, T. P., & Wider, W. (2022). Online Grocery Shopping Behavior among Consumers in Singapore. *International Journal of Management and Sustainability*, 11(1), 58–69. <https://doi.org/10.18488/11.v1i1.2977>
- Velasco, E. (2021). Impact of Singapore's COVID-19 confinement on atmospheric CO<sub>2</sub> fluxes at neighborhood scale. *Urban Climate*, 37, 100822. <https://doi.org/10.1016/j.uclim.2021.100822>
- Wang, X., Wong, Y. D., Chen, T., & Yuen, K. F. (2022). An investigation of technology-dependent shopping in the pandemic era: Integrating response efficacy and identity expressiveness into theory of planned behaviour. *Journal of Business Research*, 142, 1053–1067. <https://doi.org/10.1016/j.jbusres.2022.01.042>
- Watermeyer, R., Chen, Z., & Ang, B. J. (2022). 'Education without limits': The digital resettlement of post-secondary education and training in Singapore in the COVID-19 era. *Journal of Education Policy*, 37(6), 861–882. <https://doi.org/10.1080/02680939.2021.1933198>
- Wei, W. E., Li, Z., Chiew, C. J., Yong, S. E., Toh, M. P., & Lee, V. J. (2020). Presymptomatic Transmission of SARS-CoV-2—Singapore, January 23–March 16, 2020. *MMWR. Morbidity and Mortality Weekly Report*, 69(14), 411–415. <https://doi.org/10.15585/mmwr.mm6914e1>
- Wong, M. C. P., Tan, C. S., Chan, A. Y., Khaled, N., Hasan, M. T., Panchapakesan, C., Tripathi, S., Afsana, K., Lwin, M. O., Chen, M. I.-C., & Hildon, Z. J.-L. (2022). Exploring COVID-19 circuit breaker (CB) restrictions at a migrant worker dormitory in Singapore: A case study and nested mixed-method analysis of stress management and mental health. *BMJ Open*, 12(8), e060163. <https://doi.org/10.1136/bmjopen-2021-060163>



- Wong, S. Y. S., Tan, D. H. Y., Zhang, Y., Ramiah, A., Zeng, X., Hui, E., & Young, D. Y. L. (2021). A Tale of 3 Asian Cities: How is Primary Care Responding to COVID-19 in Hong Kong, Singapore, and Beijing? *The Annals of Family Medicine*, 19(1), 48–54. <https://doi.org/10.1370/afm.2635>
- Woo, J. J. (2020a). Policy capacity and Singapore's response to the COVID-19 pandemic. *Policy and Society*, 39(3), 345–362. <https://doi.org/10.1080/14494035.2020.1783789>
- Woo, J. J. (2020b). Pandemic, politics and pandemonium: Political capacity and Singapore's response to the Covid-19 crisis. *Policy Design and Practice*, 1–17. <https://doi.org/10.1080/25741292.2020.1835212>
- Yang, Y., Chua, J. J. E., Khng, K. H., & Yu, Y. (2023). COVID-19, Family Dynamics, and Perceived Mental Health Among Families in Singapore. *Journal of Child and Family Studies*, 32(2), 555–570. <https://doi.org/10.1007/s10826-023-02541-z>
- Yap, B. K. C., Espeleta, W., Sinnatamby, S., Li, F., Liza, B. A., Ong, S. Y., Png, G. K., Koh, J. M. K., Koh, L. H., & Goh, K. S. (2022). Challenges of Singapore's First Acute Geriatric Isolation Facility During the COVID-19 Pandemic. *Proceedings of Singapore Healthcare*, 31, 201010582110476. <https://doi.org/10.1177/20101058211047684>
- Yap, K. K. L., Soh, M. C. K., Sia, A., Chin, W. J., Araib, S., Ang, W. P., Tan, P. Y., & Er, K. B. H. (2022). The influence of the COVID-19 pandemic on the demand for different shades of green. *People and Nature*, 4(2), 505–518. <https://doi.org/10.1002/pan3.10304>
- Ye, J. (2021). Ordering Diversity: Co-Producing the Pandemic and the Migrant in Singapore during COVID-19. *Antipode*, 53(6), 1895–1920. <https://doi.org/10.1111/anti.12740>
- Yee, K., Peh, H. P., Tan, Y. P., Teo, I., Tan, E. U. T., Paul, J., Rangabashyam, M., Ramalingam, M. B., Chow, W., & Tan, H. K. (2021). Stressors and coping strategies of migrant workers diagnosed with COVID-19 in Singapore: A qualitative study. *BMJ Open*, 11(3), e045949–e045949. <https://doi.org/10.1136/bmjopen-2020-045949>
- Yeoh, B. S. A. (2004). Cosmopolitanism and its Exclusions in Singapore. *Urban Studies (Edinburgh, Scotland)*, 41(12), 2431–2445. <https://doi.org/10.1080/00420980412331297618>
- Yeoh, B. S. A. (2007). Migration and social diversity in Singapore. In *Singapore Perspectives 2007: A New Singapore* (Vol. 1–Book, Section, pp. 47–56). [https://doi.org/10.1142/9789812708243\\_0004](https://doi.org/10.1142/9789812708243_0004)
- Yeoh, E., Tan, S. G., Lee, Y. S., Tan, H. H., Low, Y. Y., Lim, S. C., Sum, C. F., Tavintharan, S., & Wee, H. L. (2021). Impact of COVID-19 and partial lockdown on access to care, self-management and psychological well-being among people with diabetes: A cross-sectional study. *International Journal of Clinical Practice*, 75(8). <https://doi.org/10.1111/ijcp.14319>
- Yep, B. L. W., Tan, T. K., & Fung, F. M. (2023). How Partial Anonymity May Reduce Students' Anxiety During Remote Active Learning: A Case Study Using Clubhouse. *Journal of Chemical Education*, 100(2), 459–468. <https://doi.org/10.1021/acs.jchemed.2c00051>
- Yi, H., Ng, S. T., Farwin, A., Low, A. P. T., Chang, C. M., & Lim, J. (2021). Health equity considerations in COVID-19: Geospatial network analysis of the COVID-19 outbreak in the migrant population in Singapore. *Journal of Travel Medicine*, 28(2). <https://doi.org/10.1093/jtm/taaa159>
- Yu, C. C., Tou, N. X., & Low, J. A. (2022). A comparative study on mental health and adaptability between older and younger adults during the COVID-19 circuit breaker in Singapore. *BMC Public Health*, 22(1), 507. <https://doi.org/10.1186/s12889-022-12857-y>
- Yue, A. (2022). Conjunctions of resilience and the Covid-19 crisis of the creative cultural industries. *International Journal of Cultural Studies*, 25(3–4), 349–368. <https://doi.org/10.1177/13678779221091293>
- Yuen, K. F., Cai, L., Lim, Y. G., & Wang, X. (2022). Consumer acceptance of autonomous delivery robots for last-mile delivery: Technological and health perspectives. *Frontiers in Psychology*, 13, 953370. <https://doi.org/10.3389/fpsyg.2022.953370>
- Yuen, K. F., Leong, J. Z. E., Wong, Y. D., & Wang, X. (2021). Panic buying during COVID-19: Survival psychology and needs perspectives in deprived environments. *International Journal of Disaster Risk Reduction*, 62, 102421. <https://doi.org/10.1016/j.ijdrr.2021.102421>
- Yuen, S., Cheng, E. W., Or, N. H. K., Grépin, K. A., Fu, K.-W., Yung, K.-C., & Yue, R. P. H. (2021). A tale of two city-states: A comparison of the state-led vs civil society-led responses to COVID-19 in Singapore and Hong Kong. *Global Public Health*, 16(8–9), 1283–1303. <https://doi.org/10.1080/17441692.2021.1877769>
- Zhang, J., Yang, H., Yang, M., & Tan, H. (2022). The role of vaccines in COVID-19 control strategies in Singapore and China. *Health Policy and Technology*, 11(2), 100620. <https://doi.org/10.1016/j.hlpt.2022.100620>
- Zheng, K., Ortner, P., Lim, Y. W., & Zhi, T. J. (2021). Ventilation in worker dormitories and its impact on the spread of respiratory droplets. *Sustainable Cities and Society*, 75(Journal Article), 103327–103327. <https://doi.org/10.1016/j.scs.2021.103327>
- Zhu, J., Zhu, J., & Guo, Y. (2022). Implications of the COVID-19 pandemic for urban informal housing and planning interventions: Evidence from Singapore. *Habitat International*, 127, 102627. <https://doi.org/10.1016/j.habitatint.2022.102627>

