

It was the best of times, it was the worst of times: A tale of two cities—Beijing and Shanghai—Why the divergent COVID-19 control outcomes?

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Word count: Abstract (105); Main text (1,009)

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3 **It was the best of times, it was the worst of times: A tale of two cities—Beijing and**
4 **Shanghai—Why the divergent COVID-19 control outcomes?**
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6

7 **Abstract**
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10 COVID-19 both creates and complicates public health challenges. Yet the pandemic also provides
11 a unique lens for dissecting complex issues in global health that could benefit society in the long
12 run. In this paper, we discuss the underlying reasons that can help explain the divergent COVID-
13 19 control outcomes between Beijing and Shanghai—two advanced metropolitans that are similar
14 in their municipal capacity, administrative capability and pandemic strategy. We hope insights of
15 this investigation contribute to the development of disease prevention systems, such as context-
16 specific and data-driven public health strategies that could yield optimal pandemic control
17 outcomes with minimal unintended consequences, both amid and beyond COVID-19.
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22 **Keywords:** COVID-19, health policy, global health, disease prevention, infectious diseases
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3 **It was the best of times, it was the worst of times: A tale of two cities—Beijing and**
4 **Shanghai—Why the divergent COVID-19 control outcomes?**
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7 **Highlights**
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10 ● Albeit their similarities in municipal capacity, administrative capability and pandemic
11 strategy, Beijing and Shanghai have divergent COVID-19 control outcomes.
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14 ● In this analysis, we discussed the underlying reasons that might have contributed to
15 Beijing and Shanghai's different COVID-19 control performances.
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18 ● Insights of this investigation underscore the importance of data-driven pandemic
19 policymaking to maximize desirable disease prevention outcomes and minimize
20 unintended consequences.
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9 COVID-19 is a time of revelations and contrasts. As there are vaccine supporters and
10 boosters, there are mask wearers and doubters. However, while these differences could shed light
11 on individual differences in people's susceptibility to COVID-19 infections, hospitalizations and
12 deaths, they are limited in their ability to explain why societies that adopt the same COVID-19
13 countermeasures, such as Beijing and Shanghai, could result in immensely divergent pandemic
14 control outcomes. As two of the most advanced metropolitans in China and across the world,
15 Beijing and Shanghai share similarities in their municipal capacity, administrative capability and
16 pandemic strategy—the zero-COVID strategy, an elimination policy that aims to reduce virus
17 spread to negligible levels. However, while Beijing's new positive daily cases in 2022 ranging
18 from one to three digits (weekly average cases are 115 as of 30 June 2022), Shanghai has seen
19 over 30,000 cases per day during its worst Omicron surges—cases that took the city a two-month
20 lockdown to control (1).
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36 Drawing from the literature and our own research, we believe several factors might have
37 contributed to the divergent pandemic control outcomes between Beijing and Shanghai during
38 their Omicron spread. First, Shanghai's application of the zero-COVID strategy is poorly timed
39 and implemented (2). It has been long-established that COVID-19 infections grow exponentially,
40 which means that the earlier their spread is controlled, the easier they could be controlled.
41 Unfortunately, officials in Shanghai failed to implement the zero-COVID strategy swiftly or
42 successfully during the early weeks of its Omicron outbreak. Different from Shanghai, officials in
43 Beijing rolled out zero-COVID measures as soon as positive COVID-19 cases were identified in
44 the city, which not only bought the city valuable time for readying overall anti-pandemic
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3 infrastructure (e.g., quarantine hotels), but also helped health experts gain more evidence-based
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5 understanding of the scale, scope and severity of the Omicron spread.
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8 Second, Shanghai might be distracted by its own success, both in terms of its past economic
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10 achievement and pandemic containment. Prior to its Omicron scares, COVID-19 cases in Shanghai
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12 are largely negligible (1). This might have given the public, especially the elderly, a false sense of
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14 security and a pretext for not getting vaccinated, even though they are profoundly vulnerable to
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16 COVID-19 threats (3, 4). In March 2022, for instance, only around 20% of elderly over 80 years
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18 in China received three doses of COVID-19 vaccines (5). By contrast, almost 90% of people of
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20 the same age group were boosted in the United Kingdom (1). Shanghai's unique status as a key
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22 global financial hub may also lead the false assumption that Shanghai's economic prowess is too
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24 exceptional to not be considered an exception to the zero-COVID strategy. This is an ill-founded
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26 judgement, as Shanghai, too, has weaknesses—noticeably the city's large population size and its
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28 chronically cramped health infrastructure. In a modelling study, for instance, researchers estimate
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30 that, without sufficient implementation of zero-COVID measures, in a 3-month period alone,
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32 Shanghai could face a demand for intensive care services 15.6 times its capacity and a surge of
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34 COVID-19 deaths up to 1.55 million (6).
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40 Local officials' miscalculation of the situation may also explain why their COVID-19
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42 communications are confusing and conflicting—another factor that could have contributed to
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44 Beijing and Shanghai's contrasting pandemic control outcomes. Days after repeatedly
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46 emphasizing that Shanghai will not implement a lockdown, officials have abruptly implemented a
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48 citywide lockdown, accompanied by opaque public health directives, foggy implementation
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50 guidelines and changing interpretations of what “lockdowns” entail (7). As a result, many residents
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52 in Shanghai face acute shortages of essential goods such as food and medicine (8), which may
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3 have further undermined their ability or willingness to comply with COVID-19 health directives
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5 (9). Different from Shanghai, officials in Beijing have clearly delineated what efforts are needed
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7 from the public to control the city's Omicron spread and for how long. Though Beijing's public
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9 health directives also vary as cases fluctuate, the city has largely controlled its Omicron surges
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11 without implementing citywide lockdowns. Another factor that could explain Beijing's success in
12
13 controlling its Omicron spread centres on the overwhelming warnings and lessons Shanghai
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15 provided.
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19 When it comes to early warnings and evidence that substantiate timely implementation of
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21 the zero-COVID strategy, Shanghai was the canary in the coal mine. Before Shanghai's Omicron
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23 surges, China has been widely considered a success in managing COVID-19 threats. Shanghai
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25 showed how fragile could a society become if COVID-19 was not addressed with effective
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27 countermeasures. Lessons from Shanghai on dos and don'ts in coping with Omicron spread, in
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29 turn, may have prepared officials in Beijing for their later virus outbreaks. Public adherence to
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31 COVID-19 countermeasures may also play a role. Abrupt and stringent implementation of
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33 pandemic countermeasures could cause poor public adherence to the zero-COVID strategy (7),
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35 and in turn, compromise Shanghai's pandemic control efforts. Furthermore, different from Beijing,
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37 Shanghai is also less familiar with disruptions to daily life and economic activities. By contrast, as
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39 China's capital, similar to cities such as London, Beijing is often exposed to events that would
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41 result in short- or long-term disruptions to public spaces or transportation systems, such as visits
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43 from state officials, national parades and the Olympic Games. This means that pandemic
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45 countermeasures might be less surprising and more approachable among residents in Beijing than
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47 their counterparts in Shanghai.
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3 Another potential contributing factor is that the toll of severe acute respiratory symptoms
4 or SARS on Beijing was substantially graver than that of Shanghai by degrees of magnitude (10).
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6 A more personal and relatable understanding of the damages of infectious diseases can incur if not
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8 controlled swiftly may also help shape Beijing residents' adherence of public health directives
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10 amid COVID-19 scares. Taken together, these insights suggest that, even under the same pandemic
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12 control framework—the zero-COVID strategy, prevention outcomes could vary substantially
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14 across societies. This means that to ensure public health directives inspire public belief as opposed
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16 to incredulity, support rather than scepticism, more evidence-based and data-driven understanding
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18 of pandemic control strategies is needed, so that health officials could more efficiently,
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20 economically and empathetically unite all communities in surviving and thriving public health
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22 crises, amid and beyond COVID-19.
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List of abbreviations

NA

Declarations

- Ethics approval and consent to participate
 - Not applicable.
- Consent for publication
 - Not applicable.
- Availability of data and materials
 - Data are available upon reasonable request.
- Competing interests
 - None.
- Funding
 - None.
- Authors' contributions
 - ZS, AC, DMD, BLB, JA, SS, CPdV, & YTX conceived the work, reviewed the literature, drafted, and edited the manuscript. All authors approved the manuscript for submission.
- Acknowledgements
 - The authors wish to express their gratitude the editors and reviewers for their constructive input and insightful feedback.

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