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Mini-Review

Transportation and Mobility as the Number Two Enemy to the Prevalence of the COVID-19 Pandemic

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ABSTRACT

This paper discusses the role of transportation and mobility in the prevalence of the COVID-19 pandemic. It mainly highlights the impact of mobility behavior and patterns on the reoccurrence of smaller outbreaks at the smaller spatial scales of sub-regions, regions, and cities. As countries like China has a high demand for domestic mobility, we see a strong correlation between transportation and the spread of disease. This brief paper delves into this discussion, highlighting issues such as continuous and standardized regulations, their implementation, and close monitory and management of mobility between provinces and cities. The study provides recommendations for minimizing unnecessary travel behaviors and patterns, collective and standardized measures, and a multi-scalar approach for the management and containment of the ongoing pandemic. The discussions strongly link to one of the core positive pillar dimensions, namely 'good relations with neighbors'.

Keywords: Transportation; Mobility; Regional; Good relations; Prevalence; COVID-19 pandemic

INTRODUCTION

As we have re-entered another complex time of the ongoing COVID-19 pandemic, we have to reflect on what could be done to avoid future large-scale adversities. The reoccurrence of smaller outbreaks at the regional and sub-regional levels suggests that the prevalence of the outbreak is caused by large-scale mobility behaviors and/or patterns [1,2]. The impacts are two-sided. On one hand, there are shreds of evidence of the dynamic implications of the pandemic on regional logistics and transportation [3]. On the other hand, we see the impact of transportation and mobility on the pandemic [4]. The combined effects from the two dynamics have significant implications for the prevalence of the pandemic and the reoccurrence of smaller outbreaks at the smaller spatial levels. While many cities and provinces in China were relatively safe for a relatively long time, we see complexities at the smaller scales. These complexities are related to the mobility of people and goods between regions and the dynamism of mobility between provinces and cities. For instance, during summer 2021 and autumn 2021, and despite having restricted borders (with some closures) and high-level safety and security measures, China experienced many smaller outbreaks in smaller regions or at the individual city level. These smaller outbreaks are continuously experienced in winter 2021 and entering the year 2022. Thus, we see the spread of disease could occur in any location and at any time. Risks remain high, and each region is currently alarmed as the dynamism of transportation and mobility remains a challenge. In the year 2019, there has been an occurrence of pneumonia related to a new coronavirus like, Severe Acute Respiratory Syndrome due to coronavirus 2 (SARS-CoV-2) in Wuhan, China. More than one and a half million people were affected by COVID-19, causing over 80,000 deaths in 204 countries in the year 2020. Current reviews recommend that the psychological influence of quarantine and social distancing is wide-ranging, significant, and can be long-lasting, with anxiety and mood disorders, psychological suffering, post-traumatic stress syndrome, sleep disturbance, and other psychopathological conditions.

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NUMBER ONE ENEMY TO THE PREVALENCE OF THE PANDEMIC

We can dispute that the number one enemy of the pandemic is 'neglect'. This could be understood from multiple perspectives of 'neglect by people', 'neglect by the government', and 'inactions' against control and containment of the disease. Luckily, this has not been an issue in China, as the situation was escalated instantly when the novelty of disease was verified. From the early days of the COVID-19 pandemic, general concerns turned into general care. In such a responsive manner, management and governance issues were not neglected [4]. This was done collectively and successfully. Yet, the experience of later smaller outbreaks reminds us of the smaller waves of the pandemic that occurs and reoccurs at smaller scales. Moreover, if not controlled, the situation could get back to a nationwide challenge [4-6]. The same situation has been experienced elsewhere, leading to many ineffective nationwide lockdowns and sporadic control patterns. Hence, measures need to be continuous or at least to include continuous indicators [7] and/or standardized for longer-term containment and management of the pandemic.

NUMBER TWO ENEMY: TRANSPORTATION AND MOBILITY

As we experience new phases of smaller outbreaks and the reoccurrence of the upsurge in the number of infected cases, we see one common factor that needs more attention than before. We should be more concerned about transportation and mobility as the number two enemy to the prevalence of the pandemic. The complexities are multifaceted. There are shreds of evidence of many "COVID-19-related disruptions in transportation services" [8], changes in transportation use and behaviors [9], and large-scale transportation [10] causing more spread of the disease in various locations. As we face a growing number of cases, both as individual reports or as clusters in specific locales, we have to be extra cautious of our mobility at the larger scale. Throughout history, we have seen the impacts of transportation on the spread of diseases, and the COVID-19 is undoubtedly no exception. As we live in a much-connected world, our mobility rate is also significantly increased [4]. Thus, transportation control and management need to be combined with safety and security measures, the continuous implementation of regulations, and other measures like track and trace.

Without a doubt, mobility behavior and patterns cause a faster spread of the disease. Large-scale intra-city and intra-provincial travel patterns could lead to potential risks for cities and regions that tirelessly fought against the pandemic for months. We witnessed the reoccurrence of smaller-scale outbreaks in the touristic areas during summer 2021 and in the business-related areas during autumn 2021. However, ahead of the coming Chinese New Year holiday period, keeping the regions safe would remain a significant challenge, and an objective goal to ensure the spread is controlled again.

DISCUSSION

In this complex situation of high traveling demand, and considering the risks of flu season, we see a much more significant threat related to high mobility influx in between regions. The situation has been almost the same in the US, the EU, the Middle East, and other more connected regions or countries [11-13]. We have to learn from what happened just over a year ago and keep the operations safe and healthy [10]. We have to evade jeopardizing the containment procedure to safeguard regional operations and connectivity while protecting critical infrastructures, healthcare services, daily operations, and essential workers. The challenges are immense yet suggest the importance of transportation and mobility in an era that we could potentially minimize unnecessary travel behaviors and patterns.

Attention to transportation and mobility behaviors requires collective compliance to succeed in keeping the regions safe. Under the shadow of the growing infected cases and the return of higher-level safety and control measures, transportation management should not be mistaken with control. While the two could complement each other, we see a more considerable challenge in managing transportation and mobility at smaller scales between regions or provinces. In a large country like China, the nationwide containment of the disease could be challenging, and thus, collective and standardized measures are recommended.

We, as individuals, form communities, and our communities are collective parts of our cities and regions. If collective compliance is fully considered, then we could have a ripple effect on a larger scale. We have to learn that our collective compliance of spring 2021 helped the procedures, ensuring we are safe from a potential catastrophe. We have to reflectively realize the importance of our individual duties to be responsible and supportive in the ongoing fight against the pandemic. This requires our attention and support at multiple scales, ensuring that communities and districts are safe, cities and regions are protected, and provinces and sub-regions have good relations with their neighbors. As one of the positive peace pillars, good relations appear more effective than ever. Thus, a multi-scalar approach towards management and containment is recommended.

CONCLUSION

The travel demand of the forthcoming Spring Festival poses a potential threat to China, where the reoccurrence of smaller outbreaks has not stopped since late August 2021. The upcoming period is the country's travel peak, requiring standardized and careful measures. This approach does not mean mere control but rather holistic management that could help cooperation between provinces and regions. This enormous travel rush, recognized as the most significant mobility demand globally, requires careful management and no restrictions. Nonetheless, managing the travel patterns should link with safeguarding transportation hubs, standardizing the safety and security measures, and ensuring our daily operations remain efficient and smooth. If not necessary, we should avoid putting

pressure on our transportation systems and critical infrastructures in high-risk regions. The increase in domestic tourism and local entertainment may increase the risk of pandemic prevalence in certain regions; thus, consistency and accuracy of measures need to be widespread to manage mobility demand and transportation patterns better.

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