

# Comparison of Community Health between Rural and Urban Areas in View of the Impact of the COVID-19 Pandemic: Global Perspective through a Literature Review

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## Abstract

The progressive aging of society is expected to lead to the development of effective integrated community-based care system considering the characteristics based on community environments. However, the COVID-19 pandemic has influenced population health worldwide. This study aimed to examine disparities in population health and health-related factors between rural and urban communities during the COVID-19 pandemic. A literature search was conducted using PubMed, Medline, and CINAHL for articles published up to September 2022 with the following search terms: community health, rural, urban, and COVID-19. A total of 105 articles were identified, of which three articles with a cross-sectional quantitative research design met the inclusion criteria. Two articles focused on mental health, and among them, one recognized a significant disparity between rural and urban areas. Four health-related factors in view of the COVID-19 pandemic in rural and urban areas were perceived, including knowledge, behavior, lifestyle, and social support. And, two factors: health-related knowledge and health-related behavior, were perceived as the significant disparities between rural and urban during the COVID-19 pandemic. The further efforts will be needed to pursue effective integrated community-based care system during and post-COVID-19, taking into account community environment at both community and individual levels.

## Keywords

Population Health, Community Environment, COVID-19

## 1. Introduction

Japan is a super-aging society with the world's highest percentage of elderly people

aged  $\geq 65$  years (28.9%) in 2021. This percentage is estimated to increase even further [1]. The need to develop a systematic community strategy for improving the quality of life (QOL) of Japanese elderly has been suggested [2], and establishing an effective integrated community-based care system based on community characteristics is important.

It has been suggested that focusing on differences in environment between rural and urban communities as one of the characteristics of residential community, social function and mental health or depression of elderly individuals might be more important as outcome measures of effective integrated community-based care [3]. However, the outbreak of the coronavirus disease 19 (COVID-19) around 2020 has influenced the health and the daily life of residential people in a community through social distance. Kgan *et al.* (2023) suggested that the COVID-19 pandemic was a globally disruptive event that created tectonic changes in all our lives, especially within the healthcare system. Along with serious consequences for public health, the COVID-19 pandemic had economic, social, psychological, and other effects worldwide [4]. Perceiving the health of people, taking into account the impact of the pandemic, will be important for care providers in the medical, health, and welfare fields, in order to establish an effective integrated community-based care system based on community characteristics.

The concept of health is characterized by three domains: physical, mental, and social [5]. Scarpetta *et al.* (2021) reported that population mental health has worsened significantly since the start of the COVID-19 pandemic, and the situation has been broadly unchanged. It was showed that in Japan, the prevalence of depression (17.3%) in 2020 increased, compared to the prevalence (7.9%) pre-COVID in 2013, according to Organization for Economic Co-operation and Development (OECD) [6]. In Japan, changes to society resulting from the COVID-19 have been reported to be irreversible, and academic institutions will need to consider evidence-based measures to lead the creation of new lifestyles and sense of value in society during and post-COVID-19 [7]. In view of the irreversible changes to society resulting from the COVID-19 pandemic, it will be important to assess perceptions of population health based on community characteristics.

It was suggested that improving population health would also require addressing the nonbehavioral determinants of health that we could influence, including social, health care, and environmental factors [8]. During 2020, the risk factors for poor mental health such as financial insecurity, unemployment, fear increased, while protective factors social connection, employment, and educational engagement, access to physical exercise, daily routine, access to health services decreased [6]. The COVID-19 can be defined as a viral disaster, and is suggested that the responses should be aware of the phases of disasters [9]. The perception of health-related factors during and post-COVID-19 from a social perspective will become more important for community care providers as they implement effective integrated community-based care systems for people which considers community aspects such as rural and urban characteristics.

The present study aimed to examine disparities in population health and health-related factors between rural and urban communities during the COVID-19 pandemic.

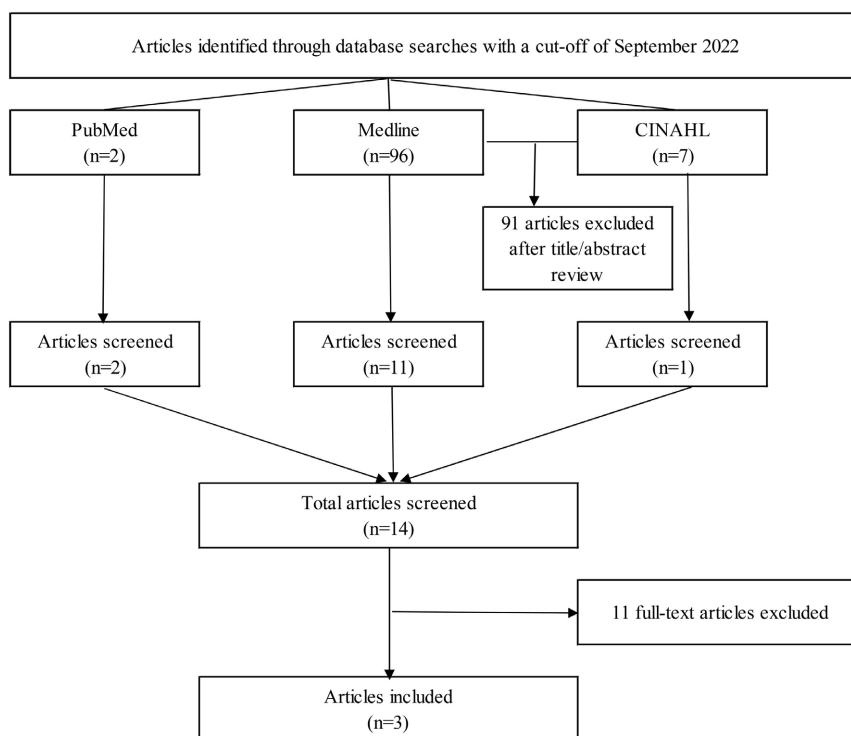
## 2. Methods

We electronically searched for English language articles published in peer-reviewed journals with a cut-off of September 2022 using PubMed, Medline, and CINAHL, with the following search terms: “community health”, “rural”, “urban”, and “COVID-19”.

Identified articles were screened by title and abstract, and selected articles were subjected to full-text assessment and critical review according to the following three inclusion criteria: 1) studies focused on population health taking into account the COVID-19 pandemic; 2) studies conducted with community-dwelling people as participants; and 3) studies conducted in both rural and urban areas. Population health and health-related factors in rural and urban areas during the COVID-19 pandemic were assessed by collecting corresponding information from each article.

## 3. Results

In total, 105 articles were identified by the search. After excluding 91 articles based on their titles and abstracts, 14 were selected. The three articles which met the inclusion criteria after full-text review were included in the final analysis (Figure 1).



**Figure 1.** Flowchart of literature search.

### 3.1. Overview of Research Articles

**Table 1** summarizes data extracted from the three articles, which had a cross-sectional quantitative research design and were published between 2020 and 2022. The number of research participants in rural and urban areas ranged from 428 to 1,013,940. The age of research participants varied widely, spanning those aged <18 years to those aged >65 years.

### 3.2. Disparities in Population Health between Rural and Urban Areas during the COVID-19 Pandemic

Two of the three articles focused on mental health in urban and rural residents, and the remaining article focused on chronic conditions. Among the two studies which focused on mental health, one recognized a significant disparity between rural and urban areas, but the other did not.

Desdiani *et al.* (2022) evaluated psychological health using the following scales: the Impact of Event Scale-Revised (IES-R), 6-item negative mental health scale, mental health-related lifestyle (MHLS) scale, scale of perceived social support from family or friends, and the Jenkins sleep scale (JSS). However, no significant differences were found between urban and rural residents on mental health. Zhang *et al.* (2021) evaluated mental health (anxiety and depression) using the General Anxiety Disorder (GAD) scale and the 9-item Patient Health Questionnaire (PHQ9). In that study, psychological status, anxiety ( $p < 0.01$ ), and depression ( $p < 0.01$ ) were significantly more severe in urban areas than in rural areas during the COVID-19 pandemic.

Kenward *et al.* (2020) suggested that 3.3% of rural and semi-rural residents were in the high-risk group compared with 2.91% of urban and inner-city residents ( $p < 0.001$ ) in terms of individual-level information, including current chronic conditions, historical healthcare utilization, and demographic and socioeconomic status.

### 3.3. Health-Related Factors in Rural and Urban Areas in View of the COVID-19 Pandemic

Four health-related factors in view of the COVID-19 pandemic in rural and urban areas were perceived, including knowledge, behavior, lifestyle, and social support.

Health-related knowledge was perceived in one article [10], which showed that the level of knowledge regarding COVID-19 in five aspects (transmission, prevention measures, symptoms of infection, treatment, and prognosis) was higher in urban areas than in rural areas.

Health-related behaviors in view of the COVID-19 pandemic were perceived in two articles [10] [11]. Zhang *et al.* (2021) reported that urban residents fared well in exchanging knowledge about COVID-19 and advising others to take preventive measures ( $p < 0.01$ ), but fared poorly in advising people to visit a hospital if they exhibited symptoms of the disease, compared to rural residents ( $p < 0.01$ ).

**Table 1.** Outline of research articles.

Authors	Title	Journal	Purpose	Research Design	Participants	Health Focus in Comparisons between Rural and Urban Areas	Health-related Factors during COVID-19 in Rural and Urban Areas
Desdiani D., <i>et al.</i>	Impact of the restrictions on community activities policy during the COVID-19 on psychological health in Indonesia's urban and rural residents: A cross-sectional study	Health Science Reports, 2022	To compare the extent of psychological impact on Indonesians living in urban and rural areas.	Cross-sectional	428 of 434 from 25 of 34 provinces in Indonesia	Mental Health	<ul style="list-style-type: none"> <li>• Social Support</li> <li>• Lifestyle</li> <li>• Sleep</li> </ul>
Zhang J., <i>et al.</i>	Rural-urban disparities in knowledge, behaviors, and mental health during COVID-19 pandemic: A community-based cross-sectional survey	Medicine, 2021	To examine the knowledge level, behaviors, and psychological status of the Chinese population during the COVID-19 pandemic, and to explore differences between urban and rural areas.	Cross-sectional	3001 community residents in 30 provinces or districts across China	Mental Health	<ul style="list-style-type: none"> <li>• Disease-related knowledge and means to gain knowledge about COVID-19.</li> <li>• Behavior of people during the pandemic.</li> </ul>
Kenward C., <i>et al.</i>	Population health management to identify and characterise ongoing health need for high-risk individuals shielded from COVID-19: a cross-sectional cohort study	BMJ Open, 2020	To use population health management (PHM) methods to identify and characterize individuals at high risk of severe COVID-19 for which shielding is required, for the purposes of managing ongoing health needs and mitigating potential shielding-induced harm.	Cross-sectional cohort	1,013,940 individuals from 78 contributing general practices in the South West of England, UK.	Chronic conditions	<ul style="list-style-type: none"> <li>• Health care utilization</li> <li>• Comorbidities</li> </ul>

Two factors, lifestyle and social support, were perceived in one article [12]. In that article, there were no significant differences in lifestyle, including sleep quality, during the COVID-19 pandemic between urban and rural areas. However, urban residents perceived a lower psychological status, in parallel with increased social support, compared to rural residents.

#### 4. Discussion

The health-related social environment of people changed worldwide with the COVID-19 outbreak from about 2019. In Japan, more people moved to rural areas once the pandemic hit. Understanding community environments has become more important for health care providers [13], and it will be even more important for health care providers to understand health status and well-being during and post-COVID-19 in rural and urban areas, taking into account the impact of the pandemic. Against this backdrop, the present study explored via a literature review the disparities in population health and health-related factors between rural and urban areas during the COVID-19 pandemic.

In two of the three selected articles, the focus was on mental health in rural and urban areas in view of the COVID-19 pandemic, with a significant disparity recognized between urban and rural areas in one of the articles [10]. In the present study, participants ranged from the elderly to younger generations. Focusing on differences in environment between urban and rural communities, social function, and mental health of elderly individuals may be important for developing a better community environment that contributes to healthy living among the younger generations [14]. Community health nurses (e.g., home-visit nurses and public health nurses) must better understand the impact of the COVID-19 pandemic on population health, particularly because they are more capable of assessing the health status of community residents while taking into consideration the community environment and characteristics (e.g., rural vs. urban areas), compared to other care providers such as GPs and social workers [15].

In the present study, four health-related factors in view of the COVID-19 pandemic in rural and urban areas were perceived, including knowledge, behavior, lifestyle, and social support, suggesting that focus should be placed on these factors when community aspects such as rural and urban characteristics are considered during and post-COVID-19. Given the impact of the COVID-19 pandemic on the structure of societies worldwide, it will become important for care providers to perceive people's health at the community level as well as at the individual level. Health in the social domain is in a dynamic balance between opportunities and limitations, shifting through life and affected by external conditions such as social and environmental challenges [5]. There is growing recognition that health disparities research must incorporate social determinants in the local environment into explanatory models [16]. In further efforts to pursue effective integrated community-based care systems that take into account com-

munity characteristics during and post-COVID-19, focus should be placed on factors such as health-related knowledge, health-related behavior, lifestyle, and social support at both community and individual levels.

## 5. Conclusions

In the current study through the literature review, mental health was perceived as the significant disparity in population health between rural and urban during the COVID-19 pandemic. And then, two factors: health-related knowledge and health-related behavior, were perceived as the significant disparities between rural and urban during the COVID-19 pandemic.

In view of the irreversible changes to society by the impact of the COVID-19, it would be more required for community health care providers to assess the mental conditions of the residents in rural and urban areas during and post-COVID-19. And then, through the collaborative efforts among community care providers in the medical, health, and welfare fields, it would be required to develop effective integrated community-based care systems during and post-COVID-19 for people that take into account community contexts in rural and urban areas such as geographical or social environments, cultural and sense of value which influence the health-related knowledge and health-related behavior at individual levels.

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## Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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