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Letter to the Editor

Poverty and COVID-19: an ignored factor

Since 2020, the COVID-19 has severely impacted human society. The relationship between poverty and COVID-19 has been discussed in Public Health,¹ and the findings were interesting. In the present study, we attempted to determine the associations between poverty and COVID-19, which may help countries formulate policies more efficiently.

The Gini coefficient (GC), created by Corrado Gini, can reflect the national income gap by judging the annual income distribution.² Therefore, the GC can reflect the wealth or poverty level of nations to a certain degree.³ Here, we used the GC to measure the wealth gap between different countries. The national poverty headcount ratio (NPHR) is the percentage of the population living below the national poverty line, reflecting the number of poor people in a country intuitively. To demonstrate our point, we investigated the

correlation between the two poverty indices and the ranks of COVID-19 cases by country (Fig. 1). The countries were ranked by the highest total number of confirmed COVID-19 cases and the percentage of the infected population. The data were gathered from the open-source “World-O-Meter” online data repository on July 27, 2020.⁴ The GC and NPHR data were gathered from World Bank.

We used the product–moment correlation coefficient to detect the correlation between factors. We found that there existed a middle negative correlation between the NPHR and the ranks of COVID-19 cases (total or prevalence rate) by country and a low negative correlation between the GC and the ranks of COVID-19 cases by country. Compared with the GC, a better correlation existed between the NPHR ranking and the ranks of COVID-19 cases by country. This difference might be caused by the fact that the GC of

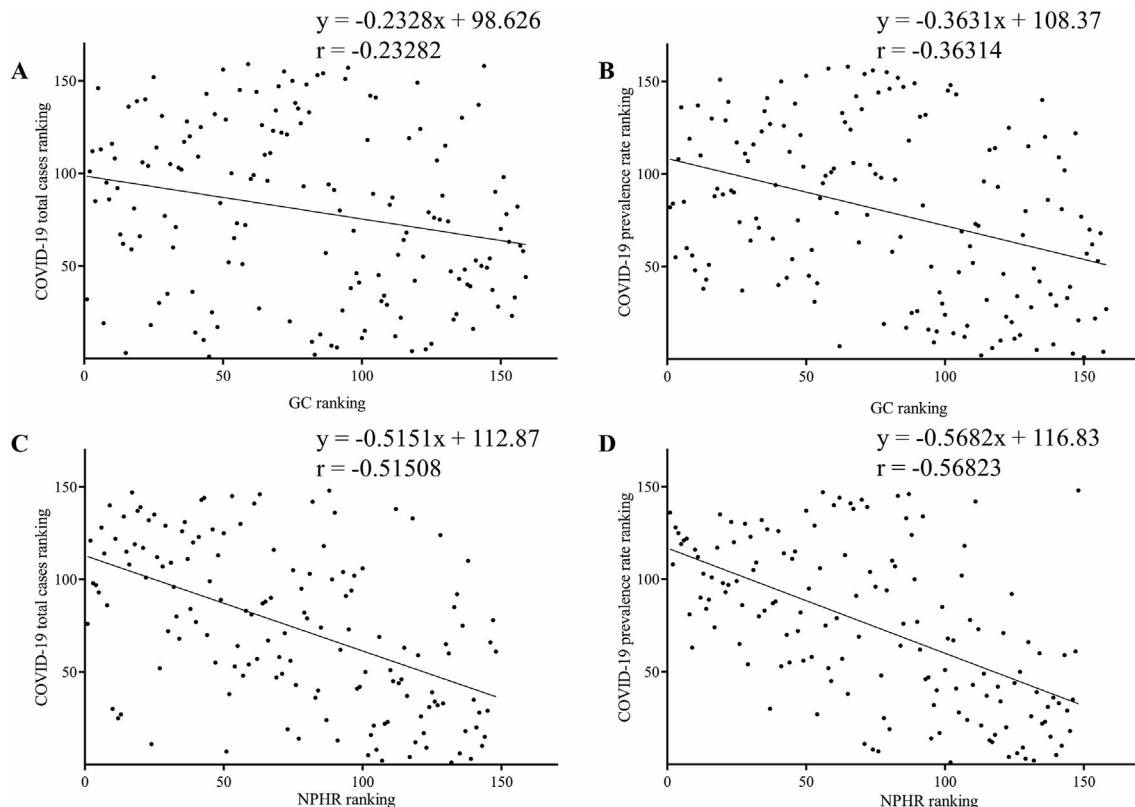


Fig. 1. (A) Scatterplot showing the association between COVID-19 cases and GC. (B) Scatterplot showing the association between the percentage of COVID-19–infected population and GC. (C) Scatterplot showing the association between COVID-19 cases and the NPHR. (D) Scatterplot showing the association between the percentage of COVID-19–infected population and NPHR.

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certain countries cannot reflect the income sufficiently. Although developing countries such as Belarus and Kazakhstan had lower GC, their medical resources were inadequate to meet the needs of most populations. The NPHR could reflect the number of poor people who could not acquire proper medical care within the countries better. As we did not consider the impact of the country's total population on the rank of total COVID-19 cases, larger-population countries may rank higher. However, ranking by prevalence rate of COVID-19 can effectively avoid this problem; therefore, we found a better correlation existed between the COVID-19 prevalence rate ranking and GC or NPHR. Undeniably, there are some biases in our analysis, for example, poverty is not the only factor, which influences COVID-19 cases. Also, for many developing countries, the number of reported cases might be very different from the actual data. Due to poverty constraints, these countries could not detect infected populations efficiently and accurately, which lead to lower reporting cases.

Overall, our study shows that poverty contributes to COVID-19 cases. However, governments have long neglected poverty in many facets of policy-making, yielding no real benefit to the worldwide COVID-19 control. Policymakers must increase aid to the poor and improve social welfare to reduce the incidence of infectious diseases. Relief for COVID-19 treatment for the poor and uninsured should also be considered. Only when poverty is no longer a neglected factor, will people be on the road to eradicating COVID-19.

Author statements

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Competing interests

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Author contributions

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Data availability statement

The detailed data of this study are available from the corresponding author.

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