Social distancing and physical isolation associated -malnutrition and COVID-19

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Keywords: Consequences, Covid-19, Malnutrition, Social distancing

Original Submission: 27 October 2022; Accepted: 4 November 2022
Article published online: 7 November 2022

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Dear Editor:

As of September 2022, the world has recorded more than 610 million cases and 6.5 million deaths from SARS-CoV-2. This pandemic has caused many changes in the physical and mental health of people, especially healthcare workers [1]. Social distancing, a part of public health and social measures (PHSM) encompassing personal measures (hand hygiene, physical distancing, respiratory etiquette, use of masks and environmental cleanliness), physical measures (social distancing and minimizing mass gatherings), movement measures including quarantine, and finally special measures dedicated to people at higher risk of disease acquisition or complications. PHSM is considered effective in stopping individual chains of transmission and preventing outbreaks hence limiting the development and spread of COVID-19 pandemic. However, prolonged social distancing and physical isolation and quarantine caused increased inequality. SARS-CoV-2 had a significant impact on agriculture and food security, especially in developing countries and vulnerable populations [2]. Social distancing caused food crises that hit developing countries hard because food production is labor-intensive [2]. In contrast, in the developed world, agriculture had been highly mechanized without the need for labor participation [2]. “Traditional” labor-intensive supply chains are more common in poor countries than in high-income or richer regions of low- and middle-income countries [3]. Furthermore, in high-income countries, fiscal and monetary stimulus stimulated output levels, which is also applied in LMICs but not to the same level compared to developed countries [3].

The physical isolation and working from home strategies applied as part of the PHSM, had lead to highest job loss among unskilled workers on a global level, while the impact on highly skilled and mentally active workers who can work from home was minimal [2]. This resulted in a significant income loss and a rise in food prices that were inversely related to the food security of the poor. Food expenditure of poor households takes up to 70% of income, while for the wealthy this proportion is only 15% [3]. Thus, the less fortunate communities significantly reduced their consumption of nutrient-rich products such as fruits, meat, eggs, and dairy products leading to micronutrient deficiencies. Meanwhile, the pandemic may also resulted in increase in the increase in the prices of services, food and products that made it even harder for the poor and low income families.

Marginalized and homeless communities who live in slums or are homeless, have HIV/AIDS, and other chronic illnesses were at higher risk of poverty during the COVID-19 pandemic [4]. School closures had increased the cost for the poor and low-income children [6]. Those individuus had to choose cheaper food and divide their portions. Meanwhile, children in middle and high-income countries may had consumed more unhealthy fast food, red meat, and sugary drinks [5]. At the same time, physical activity decreased and time spent using electronic devices increased, which would lead to an increased risk of overweight and obesity.

Chronic poverty among vulnerable groups and poor households will cause malnutrition. For moderate to severe malnutrition, the capacity of the immune system is reduced. Poverty and food insecurity may increase as the threat of COVID-19 [4]. As a result, malnuritined group is at higher risk...
of contracting infectious diseases and possibly serious complications or death from COVID-19 [4]. Children of poor/low income families may had loss of their subsidies and the provision of healthy food from schools for a prolonged durations leading to higher rates of malnutrition [5]. It is expected that the number of malnourished children with stunting of growth will increase sharply with an ill effect of the normal development of the children.

The impact of malnutrition goes beyond the involved individuals and may involve the family and the offspring. In malnourished mothers, the likelihood of preterm birth and stillbirth is higher. Therefore, some measures should be applied to limit multi-micronutrient supplementation; to increase the consumption of balanced energy and protein. In the future, children may be born undernourished as coverage of nutrition services for women and children is still declining in many countries (especially vitamin A supplementation programs). The number of children living in multidimensional poverty (without access to education, health care, housing, nutrition, sanitation, or water) could increase. The number of child deaths and stillbirths due to malnutrition is presumed to increase. The number of stunted children under the age of 5 is expected to increase from 1,540,000 to 3,500,000 by 2022. In addition, the nutrition coverage is still decreasing while the under-5 year of age mortality rate is still rising. Further studies are needed to see the long-term consequences of COVID-19 on future generations.

At the global level, coordination and assistance of many countries is required, especially for people in less developed countries. Health and wellness organizations need information on the nutritional status of each country. The key drivers of malnutrition need to be prevented through a flexible, equitable system based on national support. At the national level, measures to encourage food production and distribution should be implemented [4]. Governments around the globe can fund and make available resources for safe and equitable food distribution to ensure food access and availability of food and jobs [4]. Volunteer organizations and free food assistance packages for people at high risk are needed. Most importantly, different governmental and non-governmental organizations could aid in the protecting the public by preventing sudden increase in food prices and maintaining workers [4].

For vulnerable groups (especially women and children), low and middle income countries (LMIC) need long-term plans (e.g. agricultural reform) to provide emergency food aid to those at risk of food insecurity. Social protection programs should be promoted so that economic aid helps disadvantaged households to meet their essential consumption needs, and thus improve the nutritional status of children and other vulnerable groups. Increasing access to health care services for populations in remote areas is another way to overcome the nutritional crisis globally especially in the LMIC. In addition to improving access of community health workers to perform screening duties for maternal and child health, assessing emerging nutritional issues in the community during the COVID-19 pandemic is needed. The above strategies have been proven effective in reducing stunting growth. In addition, a safe and healthy home/community environment with freshwater availability and appropriate sanitation practices are also essential to tackle stunting in children (Table 1) [6].

Social distancing an important component of PHSM is an effective measure to prevent the spread of SAR-CoV-2, but the long-standing embargo may cause growing nutritional inequalities between countries and social classes. That inequity can have serious long-term consequences. COVID-19-related-resource exhaustion and malnutrition can have adverse effects on both current and next generations. Thus, measures to tackle this situation at the global and national levels and focusing on vulnerable groups are urgently needed.

### Authors’ contributions

DTC conceived the topic. All wrote the text. DTC and ZAM was the corresponding author. The authors read and approved the final manuscript.

### Funding

This work received no funding.

| Strategies                  | Important messages                                                                 |
|-----------------------------|-----------------------------------------------------------------------------------|
| Food insecurity inventions  | Need a long-term plan (e.g. agricultural reform) to ensure emergency food availability |
| Social protection programs  | Economic aid for vulnerable households                                              |
| Access to health care       | - Increasing access to health care for population in remote areas                  |
|                            | - Community health workers perform screening duties for maternal and child health and emerging nutritional issues during the Covid-19 pandemic |
| Education                  | Community health workers and other volunteer groups help to provide general education and health knowledge during lockdown |
| Safe and healthy home/community environment | Access to freshwater and proper hygiene practices |

Adapted from messages in Reference 6.
Ethical approval

Not applicable.

Declaration of competing interest

The authors declare that they have no competing interests.

Acknowledgements

We would like to give our sincere thanks to all the experts and editors who have ever helped us in this paper. We also thank Hue Vu Thi (Center for Biomedicine and Community Health, International School, Vietnam National University, Hanoi, Vietnam) for critical reading and checking to improve the manuscript.

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