



Commentary

The disproportionate effect of COVID-19 mortality on ethnic minorities: Genetics or health inequalities?

Ziad El-Khatib^{a,b}, Graeme Brendon Jacobs^c, George Mondinde Ikomey^d, Ujjwal Neogi^{a,*}

^a Division of Clinical Microbiology, Department of Laboratory Medicine, Karolinska Institutet, Stockholm, Sweden

^b World Health Programme, Université du Québec en Abitibi-Témiscamingue (UQAT), Québec, Canada

^c Division of Medical Virology, Department of Pathology, Faculty of Medicine and Health Sciences, Stellenbosch University, Tygerberg 7505, Cape Town, South Africa

^d Faculty of Medicine and Biomedical Sciences, Centre for the Study and Control of Communicable Diseases, University of Yaoundé I, Yaoundé, Cameroon

ARTICLE INFO

Article History:

Received 29 May 2020

Revised 4 June 2020

Accepted 5 June 2020

Available online xxx

The cases of novel coronavirus disease 2019 (COVID-19) continue to increase across the world, infecting nearly 5.5 million individuals and more than 350,000 death. The earlier studies indicate that significant risk factors for severe COVID-19 are older adults, and people with co-morbidities (regardless of age) including chronic lung diseases, heart diseases, severe obesity (body mass index 40 or higher), and diabetes. When it comes to the role of race/ethnicity, the data is limited, which could be disproportionately affecting ethnic minorities as observed in England during 2009 Influenza A (H1N1) pandemic [1]. Earlier reports from the United Kingdom indicated black, Asian and minority ethnic (BAME) are the hardest hit with COVID-19 both in terms of critically ill as well as higher mortality [2].

In the recent systematic review, by Pan et al. conducted an extensive systematic review of the literature related to ethnicity and COVID-19 during the period of 1st December 2019 through 15th May 2020 [3]. They included a total of 162 articles that were deemed related to their study aim (search sources included databases, medical journals, preprints and grey literature). Of these articles, a total of 58 articles reported race/ethnicity. Interestingly, race/ethnicity was not reported in the articles published in China, at the beginning of the pandemic. Only recently, in April 2020 onward, which overlaps with the timing emergence of the pandemic in Europe and USA. As a summary of their findings, Pan et al. report there is emerging evidence of disproportionate clinical outcomes among the ethnic minorities in several countries against COVID-19, which has been suggested by others as well [4,5]. The review also discussed in detail the utility of race/ethnicity, primarily when such pandemic is affecting the world, which is considered a

highly globalized society. Therefore, they suggested including ethnicity as a variable in the government surveillance systems.

We would like to suggest that there could be several explanations for the disproportionate burden of COVID-19 in ethnic minorities that include social, economic and health inequalities as well as genetic predisposition, biological or pathophysiological differences in response to infection. The ethnic minorities have higher burden of comorbidities like diabetes, cardiovascular disease and morbid obesity. The studies indicated that ethnic minorities had increased prevalence of vitamin D deficiency [6], increased inflammatory burdens [7], could increase the risk of COVID-19 disease severity in those populations. Also, we would like to acknowledge that the COVID-19 pandemic did make the topic of social disparities as a priority topic where it did reflect the vulnerability of the minority groups. This includes the proportion of minor race/ethnic groups, where their work conditions did not allow them to (i) practice a physical distancing; (ii) work from home; (iii) isolate and protect older family members (when they multi-generational households live together); (iv) isolate those who are sick; (v) lack of paid sick leave; or (vi) they are not provided with the proper protective measures [8]. Given that the number of cases and the case fatality ratio is relatively lower in the African countries [9] and other low- and middle-income countries, despite fragile health system, the response required to be tailored to the region of interest addressing the social and health inequalities with a proper plan.

Race/ethnicity is a complex issue. Ellison, a pioneer in the field of the utility of race/ethnicity in public policy and biomedical research, argues that the utility of race/ethnicity has limited reliability, in addition to triggering stereotyping and discrimination [10]. Therefore, it is recommended to avoid using it when it comes to population profiling for public health purposes. Yet, to be able to reduce such risks, and to increase the benefits of using race/ethnicity, it is suggested to (i) use race/ethnicity when it comes to assessing the risk of discriminative treatment (i.e. to assess whether patients would receive a discriminative treatment at a hospital due to their race/ethnicity); and (ii) when race/ethnicity is needed as a proxy for variables that is not possible to measure them, nor to find alternative variables for them (i.e. to predict socio-economic differentials like housing, income, and/or education, when it is not possible to ask about these factors). In the long-term, the COVID-19 issue will be resolved after approving a vaccine and/or treatment. Yet, historically morbidity and mortality tend to be higher among ethnic minority, in comparison with the general population, and especially during public

DOI of original article: <http://dx.doi.org/10.1016/j.eclinm.2020.100404>.

* Corresponding author.

E-mail address: ujjwal.neogi@ki.se (U. Neogi).

health emergencies. Appropriate public health and social interventions are essential to address the issue in the long run to provide better health for all.

Declaration of Competing Interests

All authors declare no conflicts of interest.

References

- [1] Zhao H, Harris RJ, Ellis J, Pebody RG. Ethnicity, deprivation and mortality due to 2009 pandemic influenza A(H1N1) in England during the 2009/2010 pandemic and the first post-pandemic season. *Epidemiol Infect* 2015;143(16):3375–83.
- [2] Liverpool L. Why are ethnic minorities worse affected? *New Sci* 2020;246(3279):11.
- [3] Pan D, Sze S, Minhas J, et al. The impact of ethnicity on clinical outcomes in COVID-19: a systematic review. *EClinicalMedicine* 2020 <https://doi.org/10.1016/j.eclinm.2020.100404>.
- [4] Kirby T. Evidence mounts on the disproportionate effect of COVID-19 on ethnic minorities. *Lancet Respir Med* 2020.
- [5] Wadhera RK, Wadhera P, Gaba P, et al. Variation in COVID-19 Hospitalizations and Deaths Across New York City Boroughs. *JAMA* 2020.
- [6] Martineau AR, Jolliffe DA, Hooper RL, et al. Vitamin D supplementation to prevent acute respiratory tract infections: systematic review and meta-analysis of individual participant data. *Bmj* 2017;356:i6583.
- [7] Schmeer KK, Tarrence J. Racial-ethnic Disparities in Inflammation: evidence of Weathering in Childhood? *J Health Soc Behav* 2018;59(3):411–28.
- [8] Yancy CW. COVID-19 and African Americans. *JAMA* 2020.
- [9] Mehtar S, Preiser W, Lakhe NA, et al. Limiting the spread of COVID-19 in Africa: one size mitigation strategies do not fit all countries. *The Lancet Global Health* 2020 [Epub ahead of print.]. doi: 10.1016/S2214-109X(20)30212-6.
- [10] Ellison GTH. 'Population profiling' and public health risk: when and how should we use race/ethnicity? *Crit Public Health* 2005;15(1):65–74.