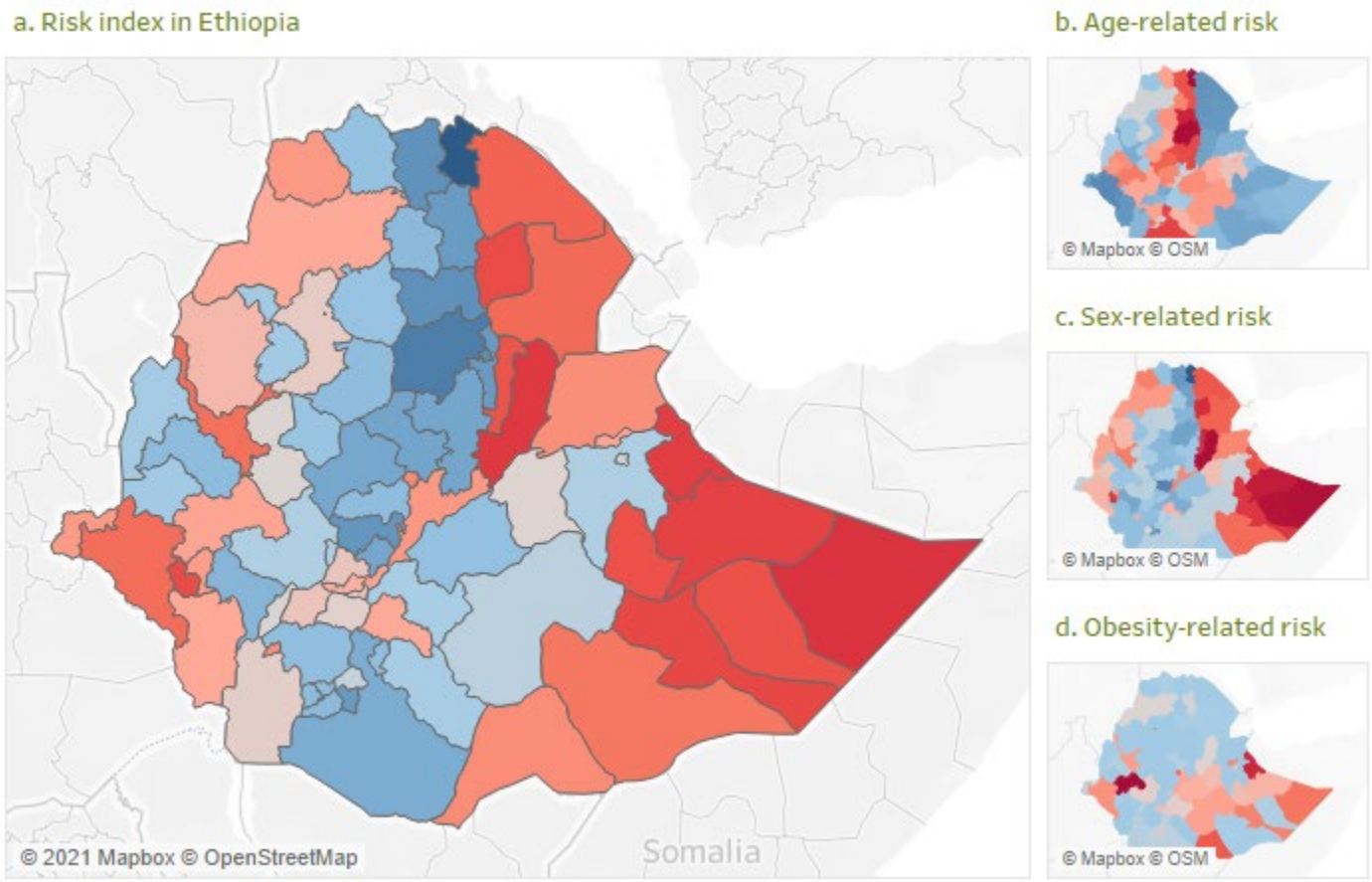
ASSESSING THE RISK OF COVID-19 IN ETHIOPIA

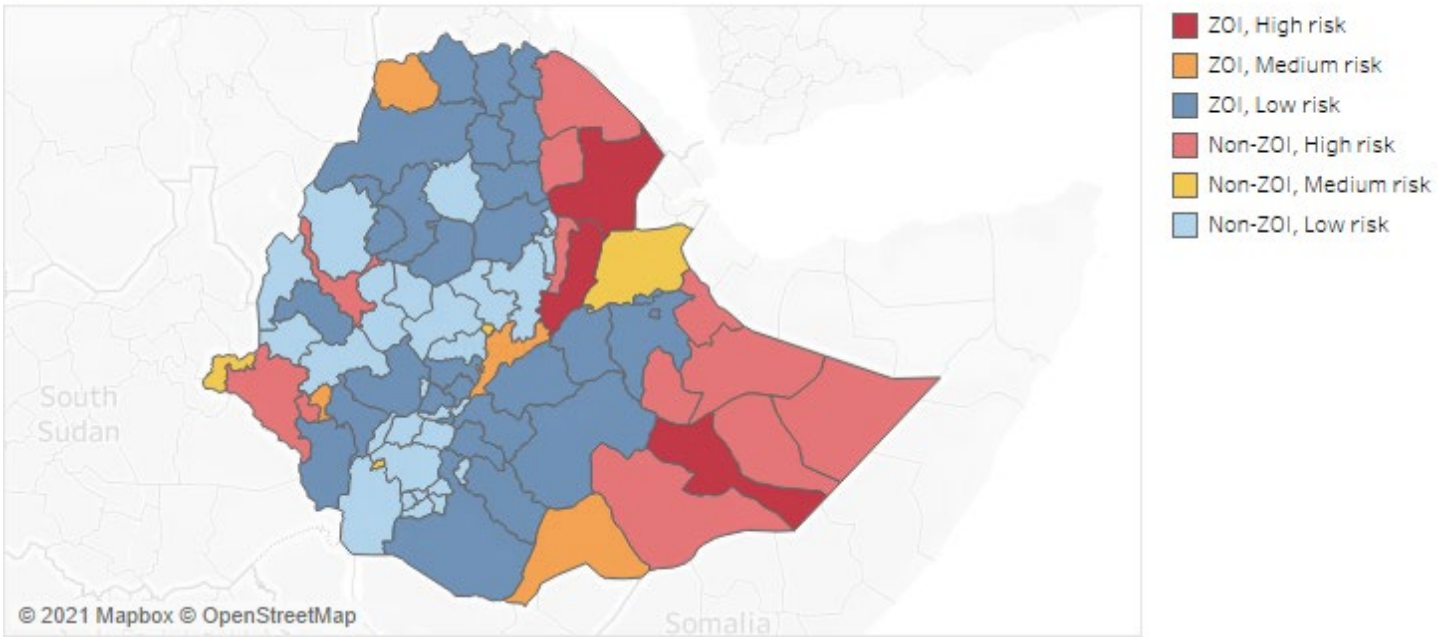
As COVID-19 vaccines are becoming available, governments will need to assess the number and location of the most vulnerable people within their populations. However, problematically, tracking data for most low- and middle-income countries are only available at the national level. To support the COVID-19 relief effort, the Gender, Climate Change, and Nutrition Integration Initiative (GCAN) was commissioned to develop a subnational dataset of key COVID-19 risk indicators and potential risk hotspots.

Based on patient data compiled and analyzed worldwide, the science community's consensus is that key COVID-19 risk factors include age, sex, and obesity. Being old, male, and obese increases both vulnerability to infection and the likelihood of negative outcomes. Based on each indicator's COVID-19 death hazard ratio, a composite index for the second-level subnational administrative units was constructed using exploratory factor analysis (a statistical technique that reduces the number of variables). The results of the subnational risk index (map a) and the risk indicators (maps b, c, and d) are presented visually below, resulting in hotspots (the redder colors) and cold spots (the bluer colors).

The three risk indicators show somewhat differing patterns. The age-related risk is high in the northern regions, including Tigray and Amhara, and highest in Misraqawi Zone. The sex-related risk is high (i.e., more male) in Afar and Somali, and the obesity-related risk is highest in Ilubabar, Oromia. Overall, the risk index is high across Afar and Somali regions.



e. Risk index classes



f. Distribution of adult population in each class of risks

The above figures categorize the risk index values into areas of low, medium, and high risk (map e) and visualize the number of adults (≥18 years old) in each category (figure f). ZOI indicates the zone of influence of the U.S. Government's Feed the Future program. Areas of high risk are Afar (Zones 1-5), Amhara (Bahir Dar), Benshagul-Gumaz (Kemashi), Gambela Peoples (Agnuak, Majang), and Somali (Afder, Doolo Fafan, Jarar, Korahe, Nogob, Shabelle). The Afar Zones 1, 3, and Shabelle are in the ZOI.

The total number of adults in the high risk areas is about 3.5 million, and most of them (3.3 million) lives in rural areas. The high risk areas overlap with major rural agricultural lands. For example, all maize and wheat growing areas in the Afar and Gambella Regions are under high risk and the regions include important pastoralist groups with multi-generational households. Given the high estimated risk and vulnerability in rural areas, interventions targeting agriculture should be encouraged. Socially distanced farming practices include collecting harvested grain at the farm gate to minimize farmers' travel to markets and the use of social networks to coordinate fieldwork on rotating days. Digital technologies are also being leveraged to support contactless transactions and the delivery of goods and produce. Other notable vulnerabilities in rural areas are related to access to information and clean water. A recent survey in Ethiopia shows the awareness of COVID-19 and its prevention measures are relatively lower in rural than urban areas[1]. Only 4% of the rural population has access to basic handwashing stations with soap and water, compared to 23% of the urban population.[2]

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[1] Bekele et al. 2021. The knowledge and practice towards COVID-19 prevention among residents of Ethiopia. Plos One. https://doi.org/10.1371/journal.pone.0234585

[2] *WASH and COVID-19*. UNICEF, 2020. https://data.unicef.org/topic/water-and-sanitation/covid-19. Accessed 9 February 2021.