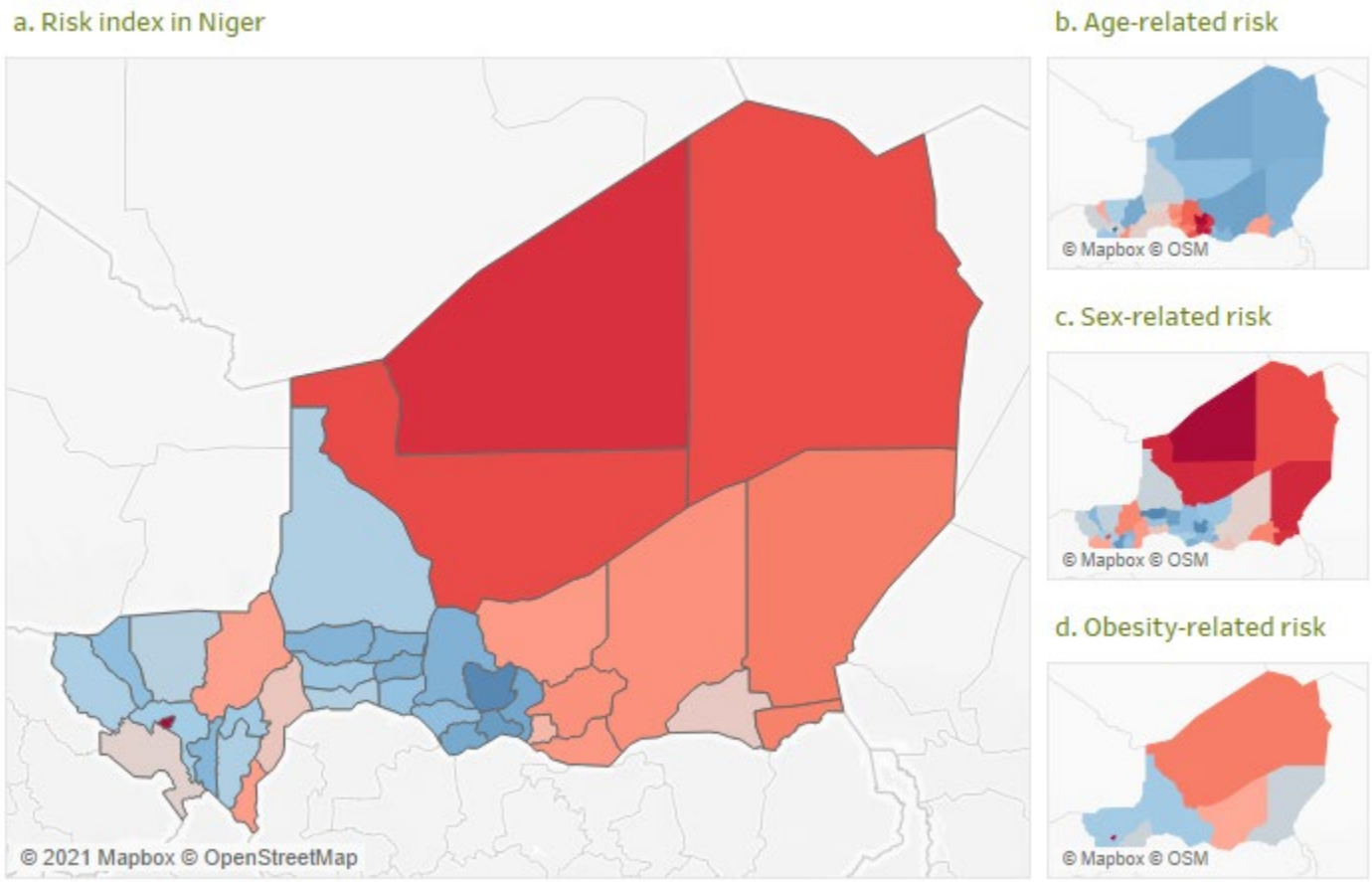
ASSESSING THE RISK OF COVID-19 IN NIGER

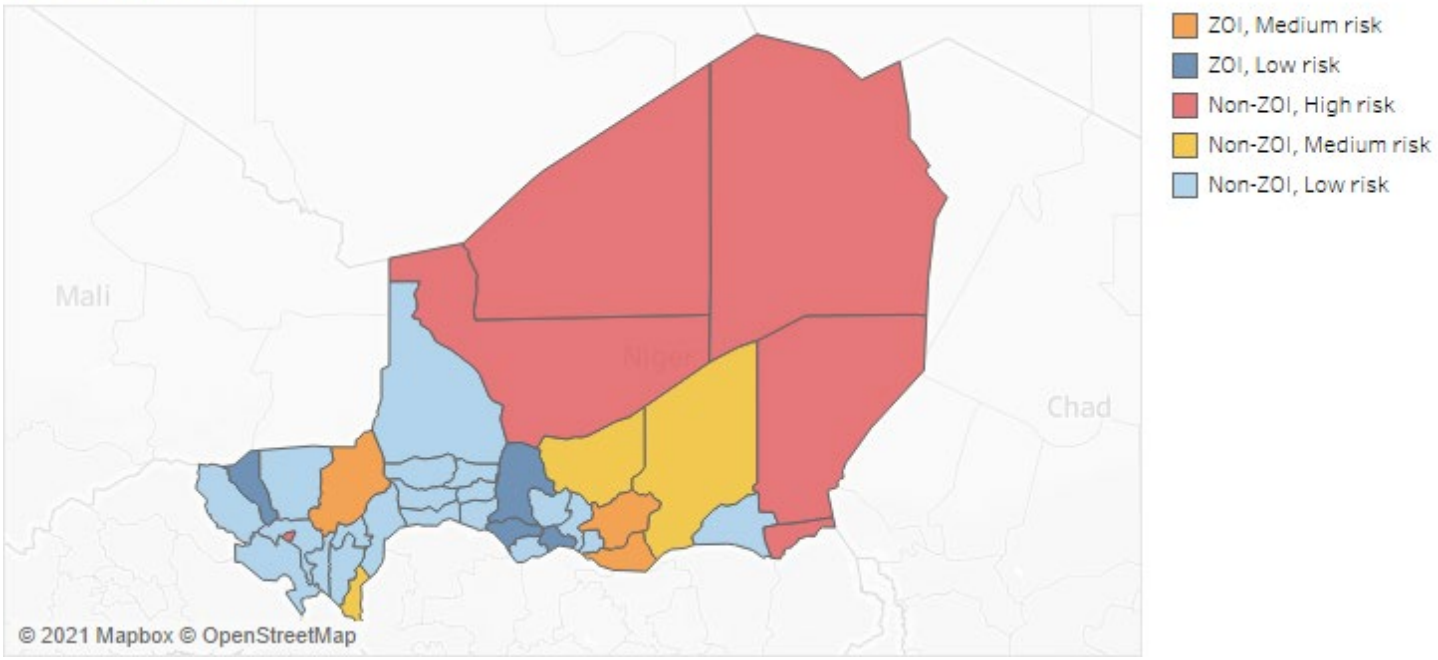
As COVID-19 vaccines are becoming available, governments will need to assess the number and location of the most vulnerable people within their populations. However, problematically, tracking data for most low- and middle-income countries are only available at the national level. To support the COVID-19 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 age-related risk is high in departments across Maradi, Tahoua, and Dosso Regions. The sex-related risk (i.e., more male) is high in Agadez, Diffa, and Niamey. The obesity-related risk is notably high in Niamey. Overall, the highest risk is estimated in Niamey, followed by Agadez (Arlit, Bilma, Tchighozerine) and Diffa (N'Guimi, Diffa).



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 Agadez (Arlit, Bilma, Tchighozerine), Diffa (Diffa, N'Guigmi), and Niamey. None of the high risk areas are located in ZOI.

The total number of adults in the high risk areas is about 1.1 million (11% of the country's total adult population). Except for Niamey, all high risk areas are located in rural areas. Given the relatively high estimated risk in rural areas, supporting interventions targeting agricultural laborers should be encouraged. Recently published studies underscore that, across low- and middle-income countries, rural areas show lower accessibility to safe water for personal hygiene and healthcare facilities than urban areas. Poor rural households reported below-average income in 2020 due to COVID-19 (e.g., reduced or stopped remittances from migrant families)[1] and significantly compromised food security (e.g., reduced consumption of nutritious foods or of food in general)[2]. Provision of planting materials may be necessary to support farmers who no longer have their own seeds due to the historic flood that caused widespread crop damages in 2020. To minimize the virus transmission risk in rural communities, socially distanced farming practices should be practiced whenever possible. Interventions practiced in other countries include collecting harvested grain at the farm gate to minimize farmers' travel to markets and the reliance on social networks to coordinate fieldwork on rotating days.

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[1] *COVID-19 and Disruptions to Vulnerable Rural Livelihoods in the Sahel.* Consultative Group to Assist the Poor, 2020. https://www.cgap.org/research/covid-19-briefing/covid-19-and-disruptions-vulnerable-rural-livelihoods-sahel. Accessed 9 February 2021.

[2] *Impact of COVID-19 on the welfare of rural households in Niger: First round data.* IFPRI, 2020. https://www2.slideshare.net/ifpri/impact-of-covid19-on-the-welfare-of-rural-households-in-niger-first-round-data. Accessed 9 February 2021.