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SARS-CoV-2 infection in vulnerable population in Goiania, Central Brazil

Dear Editor,

Brazil faces a severe economic, social and politic crisis, and consequently is one of the leading countries with the greatest number of cases and deaths due to COVID-19 caused by SARS-CoV-2.[1] Despite infectious diseases affect mainly socially and economically vulnerable people,[2] there is few data about the frequency of SARS-CoV-2 infection among them. Therefore, between July and October 2020, we investigated the prevalence of SARS-CoV-2 among recyclable waste collectors, homeless people, immigrants and refugees, LGBTQ people, sex workers, people using illicit drugs, and patients with HIV in Goiânia, a large city in Midwest Brazil.

All participants were interviewed, and samples of oropharynx and nasopharynx were collected for the detection of RNA-SARS-CoV-2. RNA extraction from SARS-CoV-2 was performed using the QIAamp Viral RNA Mini Kit (Qiagen, Maryland, USA), and real-time quantitative polymerase chain reaction (RT-PCR) was performed using AgPath-IDTM One-Step RT-PCR Reagents (Thermo Fisher Scientific, Massachusetts, USA). The assays were performed using probes from the 2019-nCoV kit (Integrated DNA Technologies, San Diego, USA).

This project was approved by the Research Ethics Committee (process no. 4145237).

A total of 517 individuals were recruited and 510 agreed to participate in the study (Table 1). The median age was 33 years (interquartile range [IQR]: 22 years), and 57.8% were male. The majority of individuals (79.2%) were non-white. The median number of years of formal education was 10 (IQR: 6), and the monthly income was approximately 222 US$ (IQR: 198).

In 17 samples, the results of RT-PCR were inconclusive. RNA-SARS-CoV-2 was positive in 95/493 (19.3%; 95% CI: 16.0—23.0) samples. The frequency of SARS-CoV-2 positivity was higher among immigrants/refugees (47.1%), followed by recycled waste collectors (15.9%) and LGBT (15.2%) subgroups (Table 1).

Currently, Brazil is the epicenter of the COVID-19 pandemic in Latin America[1] and, as observed in other contagious diseases, socially and economically vulnerable populations are disproportionately affected.[2] We detected RNA-SARS-CoV-2 in samples of 19.3% (95% CI: 16.0—23.0) of the individuals, and this increased to 37.3% (95% CI: 27.7—48.1) among those who reported with at least one COVID-19 sign and symptom. This is close to that observed among symptomatic Brazilian healthcare workers in São Paulo (42.4%; 95% CI: 36.9—48.1),[3] a regional COVID-19 epicenter. It is noteworthy that healthcare workers are frontline professionals in coping with the COVID-19 pandemic.

In this study, immigrants were the groups most affected, following by LGBT and recycled waste collectors. Therefore, the COVID-19 pandemic represents an additional challenge to be overcome by them, considering that unemployment, precarious housing, and food conditions have intensified their social, economic, and health difficulties, mirroring the existing social inequality. Thus, face masks, water and soap/sanitizer for hand hygiene, social distancing, and more recently the access to COVID-19 vaccine are challenges for these individuals.

The high frequency of COVID-19 reinforces the priority of this population for vaccination against SARS-CoV-2 in Brazil, as well as the necessity to improve the tracking of new cases, such as expanded testing and the creation of useful public policies aimed at vulnerable populations.

Table 1   RNA-severe acute respiratory syndrome corona-virus 2 (SARS-CoV-2) infection among 493 vulnerable individuals in Midwest region.

Characteristic	n	RNA-SARS-CoV-2 (+)	%
Age (median; IQR)	493	29 (15)	
Education (years) (median; IQR)	493	12 (5)	
Monthly income (US$) (median; IQR)	493	213 (202)	
Population subgroup			
LGBT[a]	79	12	15.2
Recycled waste collectors	145	23	15.9
Immigrants/ refugees	121	57	47.1
Homeless	131	3	2.3
Sex workers	4	0	
Illicit drug users	10	0	
PLWHIV[b]	6	0	
Gender			
Female	208	41	19.7
Male	285	54	18.9
Color			
White	104	22	21.2
Non-white	389	73	18.8

[a] LGBT: lesbian, gay, bisexual, transexual; PLWHIV: people living with HIV

[b] IQR: interquartile range.

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Declaration of competing interest

None.

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