

Seroprevalence and risk factors associated with SARS-CoV-2 transmission in an urban slum community in Salvador, Brazil.

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Abbreviated abstract: Residents of urban slums are vulnerable to transmission of COVID-19 due to underlying factors of poverty, family clusters and lack of quality basic sanitation. We conducted a cohort study in an urban community in Salvador, Brazil. From November 2020 to February 2021, 1.524 residents were recruited, of which 45% (689/1.524) were seropositive for SARS-CoV-2. Understanding the seroprevalence of SARS-Cov-2 in urban slums can guide public health actions such as vaccination campaigns.

Related publications: (up to 2 references)

– Aguilar Ticona, J.P.; Nery, N., Jr.; Victoriano, R.; et al. Willingness to Get the COVID-19 Vaccine among Residents of Slum Settlements. *Vaccines* 2021, 9, 951.

– Jason Corburn, David Vlahov, Albert Ko, et al. Slum Health Arresting COVID-19 and Improving Well-Being in Urban Informal Settlements. *J Urban Health* 2020.

Problem, Data, Previous Works

Residents of urban communities (favelas) are more vulnerable to COVID-19 due to the underlying factors of poverty and poor environment (such as poor water supply and poor sanitation conditions) that contribute to a high transmission of the virus and hinder the implementation of interventions non-pharmaceutical.

Consequently, the aim of this study is to assess the seroprevalence of SARS-CoV-2 and the risk factors associated with its transmission in an urban community.



Methods

We performed a cohort study in Pau da Lima, a urban slum community of Salvador Bahia, and recruited in total 1.524 residents:

- The recruitment was conducted between 2020/November until 2021/February;
- We used the platform REDCap (Research Electronic Data Capture) to collect and manage the data
- The field team used smartphones to performed the interviews.
- Also, there were collected blood samples to test for ELISA.
 - The ELISA testing was performed to detect SARS-CoV-2.
 - This test measures immunoglobulin G against a protein peak of SARS-CoV-2 (anti-S IgG).
- About the analyses we utilized the Software R to made the Statistics analyses and generate the media, Standard Deviation and P value.

Results and Conclusions

- Of the 1524 recruited, we detected the seroprevalence for 45% (689/1524) SARS-CoV-2 in the community of Pau da Lima.
- Sociodemographic risk factors such as gender, age group, education and income formed the main demographic and socioeconomic variables associated with a positive serologic result for SARS-CoV-2.
- Young people were the group with the highest infection rate.
- About the environmental variables that explain overcrowding – demonstrated a confirmatory association with seropositivity - is having a greater number of residents per household and a greater number of people who sleep in the same room

Characteristic	Total (N = 1,524)	Sars-COV infection (N = 689)	Sars-COV no infection (N = 835)	p-value
Demographics				
Age in years, mean (SD)	31 (17)	28 (17)	33 (17)	<0.001
Age group				<0.001
<5	23 (1.5%)	9 (39.1%)	14 (60.9%)	
5 - 12	226 (14.8%)	123 (54.4%)	103 (45.6%)	
13 - 17	189 (12.4%)	111 (58.7%)	78 (41.3%)	
18 - 24	223 (14.6%)	114 (51.1%)	109 (48.9%)	
25 - 34	249 (16.3%)	102 (41.0%)	147 (59.0%)	
35 - 44	264 (17.3%)	101 (38.3%)	163 (61.7%)	
45 - 64	294 (19.3%)	110 (37.4%)	184 (62.6%)	
> 64	56 (3.7%)	19 (33.9%)	37 (66.1%)	
Gender				0.015
Male	648 (42.5%)	269 (41.5%)	379 (58.5%)	
Female	876 (57.5%)	420 (47.9%)	456 (52.1%)	
Per capita daily household income (US\$), mean (SD)	3.8 (5.1)	3.4 (4.9)	4.1 (5.3)	0.008
Per capita household income (US\$/day)				0.006
<\$1.25	710 (46.6%)	357 (50.3%)	353 (49.7%)	
\$1.25 - \$2.49	152 (10.0%)	62 (40.8%)	90 (59.2%)	
\$2.5 - \$4.99	191 (12.5%)	78 (40.8%)	113 (59.2%)	
\$5 - \$7.49	228 (15.0%)	97 (42.5%)	131 (57.5%)	
>=\$7.5	243 (15.9%)	95 (39.1%)	148 (60.9%)	
Number of residents in the house	3.79 (1.93)	4.11 (1.97)	3.53 (1.86)	<0.001
Number of people that sleep in the same room	1.27 (1.12)	1.42 (1.18)	1.14 (1.05)	<0.001

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