

inexpensive tool to combat diseases that disproportionately affect underserved populations in the country may be irretrievably lost.

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The quiet before the storm: Negligence and inappropriateness in face mask use in the community preceded devastating second wave of coronavirus disease 2019 (COVID-19) in Brazil

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To the Editor—As of June 2021, Brazil has approached 500,000 deaths from coronavirus disease 2019 (COVID-19, <https://covid.saude.gov.br/>). Hundreds of patients die every day while awaiting intensive care unit beds. Hospitals face shortages of hypnotic drugs and muscle relaxants for patients requiring mechanical ventilation.¹ The Brazilian president's denialism,² lack of vaccines,³ and lack of coherent social distancing policies³ have undermined COVID-19 control. We hypothesize that, both as an additional factor and as consequence of the previously cited failures, population negligence in using face masks was one of the triggers of the devastating second wave that threatens Brazil since January 2021.

We conducted a cross-sectional study to analyze predictors of no use of masks or incorrect mask use (masks not covering nose or mouth) in the commercial center of Botucatu, a city with 150,000 inhabitants located in inner São Paulo State, Brazil. This city is the central hub of a regional health division and is home to a Public Medical School and a teaching hospital. It has been severely threatened by COVID-19 since April 2020. After a peak

of cases in July 2020, a gradual decrease in that number occurred until November, when case numbers started to increase again.⁵

Our study was conducted from September 21 through 27. During that period, the so-called “São Paulo Plan” (<https://www.saopaulo.sp.gov.br/planosp/>), which provided for the calibration of mobility restrictions according to COVID-19 epidemiological indicators, was in a phase of partial relaxation. However, a governmental decree mandated the use of face masks in public places and required retail stores to restrict entry to 25% of their usual costumers. Therefore, crowding on the sidewalks was common.

We estimated sample size of 767 in OpenEpi software (Emory University, Atlanta, GA), for a total population of 150,000, unknown prevalence of not using masks, 5% precision in results, and effect design of 2. That sample was expanded to achieve balanced distribution of observations per weekday and period.

The research team circulated through retail streets in cars with closed windows, following a constant and predetermined route, in the morning, afternoon and evening of each day of the week. These observations were conducted for the first 50 people seen in each repetition of the route. In total, 150 daily nonduplicate observations were recorded (N = 1,050). Study participants were characterized by sex, apparent age (through concordance of 2 investigators), period, and weekday. Multivariable logistic

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Table 1. Multivariable Multinomial Logistic Regression Analysis of Factors Associated With Inappropriate Use or No Use of Face Masks Among People in the Commercial Center of Botucatu, Brazil, Between the First and Second COVID-19 Pandemic Waves

Characteristic	Error in Face Mask Use ^a			Not Using Face Mask		
	OR	95% CI	<i>P</i>	OR	95% CI	<i>P</i>
Weekday						
Sunday (reference)	...	...	...	...	...	...
Monday	0.09	0.03–0.28	<.001	0.24	0.14–0.42	<.001
Tuesday	2.33	1.12–4.86	.02	1.04	0.61–1.76	.89
Wednesday	0.67	0.31–1.45	.31	0.35	0.20–0.59	<.001
Thursday	1.05	0.50–2.19	.31	0.44	0.26–0.75	.002
Friday	0.54	0.24–1.19	.54	0.31	0.25–0.69	.001
Saturday	0.19	0.07–0.45	.001	0.15	0.09–0.29	<.001
Period						
Morning	5.26	2.90–9.57	<.001	2.10	1.46–3.04	<.001
Afternoon	2.14	1.19–3.82	.01	1.36	0.97–1.02	.08
Evening (reference)	...	...	...	...	...	...
Demographics						
Male sex	0.99	0.54–1.15	.95	2.09	1.56–2.81	<.001
Age categories, y^b						
	2.47	0.52–11.68	.25	9.99	3.36–29.73	<.001
10–19	1.77	0.44–7.02	.41	6.86	2.57–18.31	<.001
20–29	1.44	0.48–4.38	.52	4.20	1.89–9.92	.001
30–49	0.55	0.18–1.67	.55	2.15	0.91–5.06	.08
50–69	0.40	0.19–1.61	.23	1.02	0.41–2.54	.96
≥70 (reference)	...	...	...	...	...	...

Note. OR, odds ratio; CI, confidence interval. Statistically significant ($P < .05$) results are presented in boldface.

^aUse of face masks not entirely covering nose or mouth.

^bApparent age was estimated by concordance of 2 members of the research team upon direct observation.

regression models with polynomial outcomes assessed independent factors associated with both inappropriate and no use of face masks using SPSS version 27 software (IBM, Armonk, NY).

Overall, 38.4% of those observed in this study did not wear masks, and 12.0% presented inappropriate use. In univariate analysis, use of face masks was significantly ($P < .05$) associated with male sex (44.7% vs 29.4% among women), apparent age of <30 years (44.5% vs 35.0% in older persons), Sundays, and morning periods. Except for male sex, all of the other variables were similarly associated with inappropriate use. Multivariable analysis presented similar results (Table 1).

Our findings agree with previous reports addressing self-protective behavior of general population. Male sex and younger age have been identified as predictors of not wearing face masks in public places.^{6–9} That attitude has been attributed to inflated self-perception of invulnerability and COVID-19 denialism.⁷ It is also influenced by perceptions of overall compliance. Barile *et al*⁸ found that intention to wear face masks increased when study participants perceived that “some” or “most” others were wearing them. Also, a study conducted in the United States found that those in rural areas were less likely to wear face masks.⁹ This finding is relevant for our study because our study was conducted in inner São Paulo State, which is relatively far from urban centers. The rural lifestyle may have affected our findings, though previous authors have reported similar results in metropolitan areas.^{6,7,9}

Both our findings and those of previous studies identified a pattern of noncompliance with wearing a face mask in community settings, especially among males and those aged <30 years. We observed a greater likelihood of mask negligence in the mornings and on Sundays. Those findings identify targets for educational or normative interventions, which, interpreted together with results from Barile *et al*,⁸ may have a beneficial “herd effect.” Such interventions should focus not only on the use of a mask but also on the appropriate facial coverage.

Our study was limited by the short period, the “distance observation” design, and a small sample size. Even so, it had sufficient statistical power to strengthen our hypotheses. How do these factors affect infection control and healthcare epidemiology? COVID-19 is a clear example of a disease that can be introduced into healthcare settings by patients, visitors, and healthcare workers (HCWs), causing devastating outbreaks. Overall compliance with self-protective measures in the community decreases the risk of nosocomial transmission of SARS-CoV-2. Noncompliance with face mask policies and other personal protective devices by HCWs has a harmful influence on the overall population.¹⁰ Thus, campaign to improve adherence to good practice guidelines within healthcare settings might improve adherence to self-protective behavior in community settings. Finally, in the hiatus between 2 successive epidemic waves, hospital admissions declined. This factor may have induced a false sense of security and relaxation in the use of masks. This trend

demonstrates that risk communication, through surveillance indicators and hospital occupancy, must be done with caution. Furthermore, low adherence to social restriction and the use of masks during this “quiet” period likely contributed to the arrival of subsequent pandemic waves.

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The (in)competence of the Bolsonaro government in confronting coronavirus disease 2019 (COVID-19)

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To the Editor—When one speaks of the inability of the Brazilian government to combat the pandemic, it is generally associated with a total lack of direction and erratic policy decisions,¹ but it is rarely considered that a determined path within a perverse logic is actually being followed. The use of social networks,² some television channels, and their daily discourse follow what the Bolsonaro himself defined in April 2020: “May social isolation end, (that) life return to normal and die as many as have to die.”

That is exactly what is happening in Brazil. The idea that the best vaccine would be the virus is based on the odd and perverse reasoning of Bolsonaro, which has been in practice since the beginning of the pandemic and became even more evident in March 2021. The government exhorted the Brazilians to go out and face the virus because they would be cowards if they did not. The spread of speeches in favor of drugs without scientific proof has been part of this ongoing planning.³ Misinformation (ie, “fake news”) has caused more Brazilians to expose themselves and die in the belief that there is efficient treatment for COVID-19 with the support of a few thousand doctors⁴ and millions of followers. But as Bolsonaro said, “So what?”⁵

These representatives continue to make daily pronouncements and postings doubting the benefits of vaccines⁶ because they can alter the DNA of people, they should not be mandatory, or they are experimental and were produced in a hurry. Some doctors endorse this sanctimonious fascist propaganda, and the result of this kind of

ideology is evident in the deaths of the weak by suffocation shown in the images of Manaus, capital of the State of Amazonas—analogue to “gas chambers” for those who do not have the presidential “athleticism.” Brazilian society must react so that this plan does not perpetuate and to save many Brazilians from this supremacist project.

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