Saúde
(SANTA MARIA)

Social support characteristics and testing positive for COVID-19 among Brazilian sexual and gender minorities: a cross-sectional study

Características do apoio social e testagem positiva para COVID-19 em brasileiros de minorias sexuais e de gênero: um estudo transversal

Juliana Lustosa Torres, Analaura Ribeiro Pereira, Isabella de Paula Ribeiro Argôlo, Gabriela Persio Gonçalves, Maria Helena do Nascimento Souza

Abstract:

Objectives: To describe social support characteristics by gender identities, to identify social support characteristics associated with testing positive for COVID-19 among the Brazilian sexual and gender minorities, and to test whether the association between social support characteristics and testing positive for COVID-19 are modified by age. Methods: This cross-sectional study was based on a national survey of 976 participants, conducted from August to November 2020. We used self-reported positive COVID-19 test and social support characteristics, including social connectedness, sexual or gender discrimination from immediate families, loneliness, and the number of people living in the household. Covariates included sociodemographic, health-related, and COVID-19 preventive characteristics. Statistical analysis was based on Logistic Regression models. Results: Transgender, non-binary, and other scarce gender identity minority's individuals who lived with a fewer number of people (2.3; 95% CI 2.0 – 2.6), who suffered sexual or gender discrimination from immediate families (29.8%; 95% CI 20.3; 40.7%), and had higher loneliness (mean score 6.2; 95% CI 5.9 – 6.6) showed lower social support. Testing positive for COVID-19 was positively associated only with the number of people living in the household (Odds ratio [OR] = 1.29; 95% CI 1.02-1.63). Additionally, older individuals who often suffer sexual or gender discrimination from the immediate families were more prone to testing positive for COVID-19 (p=0.036). Conclusions: Brazil urges public policies to effectively control the COVID-19 spread and supporting sexual and gender minority individuals.

Keywords: Sexual and Gender Minorities; COVID-19 testing; social support; social networking; Health Vulnerability.

Resumo:

Objetivos: Descrever características do apoio social segundo identidade de gênero, identificar características do apoio social associadas à testagem positiva para COVID-19 em minorias sexuais e de gênero brasileiras, e testar se a associação entre apoio social e testagem positiva para COVID-19 é modificada pela idade. Métodos: Este é um estudo transversal baseado em um inquérito nacional com 976 participantes, conduzido de Agosto a Novembro de 2020. A testagem positiva para COVID-19 foi avaliada através de autorrelato e as características do apoio social incluíram conexão social, discriminação sexual ou de gênero pela família imediata, solidão e número de pessoas vivendo no domicílio. Co-variáveis incluíram características sociodemográficas, de saúde e de prevenção para a COVID-19. A análise estatística baseou-se em modelos de regressão logística. Resultados: Indivíduos transgêneros, não-binários, e de outras minorias de gênero escassas que moravam com um menor número de pessoas (2,3; IC 95% 2,0 – 2,6), sofreram discriminação sexual ou de gênero pela família imediata (29,8%; IC 95% 20,3; 40,7%), e apresentaram maior solidão (escore médio 6,2; IC 95% 5,9 – 6,6) tiveram menor apoio social. A testagem positiva para COVID-19 foi positivamente associada ao número de pessoas vivendo no domicílio (Odds ratio [OR] = 1,29; IC 95% 1,02-1,63). Adicionalmente, indivíduos mais velhos que sofreram discriminação sexual ou de gênero pela família imediata foram mais propensos a testar positivo para COVID-19 (p=0.036). Considerações finais: O Brasil precisa de políticas públicas efetivas para controle da disseminação da COVID-19 e dar apoio aos indivíduos de minorias sexuais e de gênero.

Palavras-chave: Minorias Sexuais e de Gênero; Teste para COVID-19;, Apoio Social; Rede Social; Vulnerabilidade em Saúde.

Como citar este artigo:
TORRES, J. L.; PEREIRA, A. R.; ARGÔLO, I. P. R.; GONÇALVES, G. P.; SOUZA, M.H.N. Social support characteristics and testing positive for COVID-19 among Brazilian sexual and gender minorities: a cross-sectional study. Revista Saúde (Sta. Maria). 2023; 49.

Autor correspondente:
Nome: Juliana Lustosa Torres
E-mail: jlt.fisioufmg@hotmail.com
Formação: Fisioterapia
Filiação: Universidade Federal de Minas Gerais

Endereço: Departamento de Medicina Preventiva e Social, Faculdade de Medicina, Universidade Federal de Minas Gerais. Professor Alfredo Balena Avenue 190. Belo Horizonte – MG.
Zip code 30.130-100

Data de Submissão: 19/08/2022

Data de aceite:

Conflito de Interesse: Não há conflito de interesse

DOI: 10.5902/223658361844

Universidade Federal de Santa Maria 1960

CCS CENTRO DE CIÊNCIAS DA SAÚDE UFSM

INTRODUCTION

Several countries worldwide have faced challenges related to the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) due to higher dissemination and severity rates, leading the World Health Organization to declare, from March 11, 2020 onward, the COVID-19 (Coronavirus disease 2019) pandemic. Consequently, several individuals have struggled to overcome the initial lockdown measures financially or mentally, including the sexual and gender minorities, a historically neglected population [1].

The sexual and gender minorities, also named Lesbian, Gay, Bisexual, Transgender, and related identities (LGBT+)*, have poorer structural social d eterminants of health, leading to higher economic impacts than their non-LGBT+ counter partners [2]. They also report barriers to compliance with public health measures during the COVID-19 pandemic [2,3]. However, other minority stressors might contribute to poor health during this period. These minorities face a lack of norms and social control since the dominant culture, social structures, and standards do not typically reflect them[4]. Therefore, the social environment, social support, and social network characteristics are crucial for developing a sense of well-being[5,6] and dealing with the pandemic.

Sexual and gender minorities experience a higher discrimination[7], which might partially explain the higher vulnerability to family violence during the COVID-19 pandemic period[8] and the difficulty in adhering to stay-at-home orders [2,3]. Moreover, the higher exposure to adverse psychological distress during the pandemic [1,9–11,] including increased loneliness, social isolation, and reduced emotional support [11–13], might also contribute to lower compliance. However, no difference was found in testing positive for COVID-19 between LGBT+ and non-LGBT+ individuals (10.3% vs. 8.6%, respectively) in the United States, although evidence of higher test rates among the LGBT+ individuals (38.3% vs. 29%, respectively) [2]. Despite national initiatives to enhance real-time reverse transcriptase-polymerase chain reaction (RT-PCR) testing in Brazil during the first year of the pandemic, the number of performed PCR tests was still below average by November 2020 [14] and higher among younger individuals aged up to 59 years [15].

Brazilian data regarding the COVID-19 test in the sexual and gender minorities are still lacking, despite expanding the rights of vulnerable groups through the Lesbian, Gay,

*Lesbian: women who are sexually or romantically attracted to other women; Gay: men who are sexually or romantically attracted to other men; Bisexual: people who are sexually or romantically attracted to both men and women; Transgender = people whose gender identity does not correspond with their sex assigned at birth.

Bisexual, Travesti*, and Transgender National Integral Health Police in 2011. Moreover, 42.7% of Brazilian sexual and gender minorities considered emotional problems the worse consequence of the COVID-19 pandemic, whereas nearly 11% mentioned loneliness and decreased family interactions during the initial social distancing measures [12]. Therefore, we posit that the social support characteristics were essential to comprehending the positivity of COVID-19 rates and that testing and adherence disparities across age groups play a role. Accordingly, this study aimed at (1) describing social support characteristics by gender identities; (2) identifying social support characteristics associated with testing positive for COVID-19 in Brazilian sexual and gender minorities; and (3) testing whether the association between social support characteristics and testing positive for COVID-19 is modified by age.

MATERIAL AND METHODS

Study design and sample

This cross-sectional analysis was based on the LGBT+ health survey, an anonymous online study of respondents. Inclusion criteria were as follows: being 18 years and over, identifying themselves as LGBT+, living in Brazil, and having Internet and computer, tablet, or smartphone access to answer the questionnaire. The LGBT+ health survey was shared on social media (i.e., Facebook, Instagram, and Whatsapp) and on the official website of the universities' participants (Universidade Federal de Minas Gerais and Universidade Federal do Rio de Janeiro). Yet, the study was advertised on the radio, in online press, and through face-to-face contact with students of the universities. The LGBT+ health survey was conducted between August 19 and November 30, 2020, about five months after the national initial social distancing strategies. Further details can be seen elsewhere [16]. The Universidade Federal de Minas Gerais Research Ethics Committee approved the LGBT+ health survey (protocols number 34123920.9.0000.5149 and 4.198.297 on August 6, 2020).

Testing positive for COVID-19

The outcome was testing positive for COVID-19, measured through self-report. The respondents were asked about having been tested for COVID-19 and about the result.

*Travesti = political term used by Brazilian people whose gender identity does not correspond with their sex assigned at birth.

When having a positive test result, we included them in the "testing positive for COVID-19" group. Considering the difficulty in differentiating the types of available COVID-19 tests without a further explanation, we contemplated any performed test.

Social support characteristics

The independent variables were the social support characteristics, including social connectedness before the pandemic, sexual or gender discrimination from immediate families, the number of people in the household, and loneliness. Social connectedness before the pandemic was measured by having at least fortnightly face-to-face meetings with friends who do not live in the same household as the respondent. Sexual or gender discrimination from immediate families was considered when often suffering any violence/discrimination from parents or immediate families after knowing about their sexual orientation and/or gender identity until nowadays. The number of people in the household included the total number of people living in the household during the interview, truncated at seven due to variability in our data. Loneliness was measured using the 3-item UCLA loneliness scale, a valid scale containing three questions about how often the participant feels a lack of companionship, left out and isolated from others, generating a score ranging from 3 to 9, where the higher scores, the higher loneliness [17].

Potential covariates

Covariates' categories were sociodemographic, health-related, and COVID-19 preventive characteristics as described below:

- Sociodemographic characteristics: gender identity (cisgender women, cisgender men, or transgender, non-binary*, and other scarce gender identity minorities); age (years), schooling (up to graduate or post-graduate), race/color (non-white or white), income in minimum salaries, i.e., R$1,045 in 2020 (<1, 1-5, >5); and type of work during the pandemic (at home, outside the house, or not working);
- Health-related characteristics: number of medical diagnoses of chronic diseases, including diabetes, hypertension, heart disease, stroke, chronic respiratory disease, chronic renal disease, cancer, and autoimmune disease (0, 1 or ≥2); and medical diagnosis of depression (yes or no);

*Cisgender: people whose gender identity corresponds to their sex assigned at birth; Non-binary: people whose gender identity is outside the gender binary (i.e., male or female).

- COVID-19 preventive characteristics: absence of a close person with COVID-19 (yes or no); social distancing adherence, including self-reported full adherence to social distancing measures imposed by governments (yes or no); proper facemask use, including self-reported full adherence to properly facemask use outside the house (yes or no).

Statistical Analysis

We used the Pearson chi-square test for categories variables and the t-test for continuous variables to evaluate differences across testing positive for COVID-19 categories. Logistic regression models were used to estimate the Odds ratios (OR) and their 95% confidence intervals (CI) to investigate social support characteristics associated with testing positive for COVID-19. Multivariate analyses included the variables with $p < 0.20$ in the univariate analysis. Multicollinearity of the included variables was performed by Variance Inflation Factors (VIF), and those with VIF>2 were excluded from the multivariate model. Additionally, we tested whether the association between social support characteristics and testing positive for COVID-19 is modified by age. Afterward, we implemented the Hosmer-Lemeshow goodness-of-fit test to assess model fit after fitting the logistic regression final models with and without effect modification. All analyses were performed using Stata 17.0 SE (Stata-Corp., College Station, Texas, USA).

RESULTS

Table 1 describes the overall characteristics of the study population (976 respondents) and according to testing positive for COVID-19. Overall, 4.8% of the respondents reported testing positive for COVID-19. The mean age was 31.3 years (± 11.5), and the respondents were primarily cisgender men (49.9%). Most respondents have white skin color (60.1%) and are up to graduate education level (68.4%). Concerning the COVID-19 preventive characteristics, 23.3% of the respondents reported not having any close person with COVID-19, 61.5% reported social distancing adherence, and 85.5% reported using facemasks properly.

Regarding the social support characteristics, 87.6% of the respondents reported social connectedness before the pandemic, and 18.8% reported sexual or gender discrimination from immediate families more often. The mean number of people living in the household

was 2.7 (±1.4), and the mean loneliness score was 5.8 (±1.6). None of these characteristics was statistically different across testing for COVID-19 categories.

Table 1 – Overall characteristics of the respondents and by testing positive for COVID-19 in the Brazilian sexual and gender minority population – LGBT+ health survey. August-November. 2020.

	Total	*Testing positive for COVID-19*		
	%	No. %	Yes. %	*P* value
Sociodemographic characteristics				
Gender identity				0.011
Cisgender female	41.5	98.3	1.7	
Cisgender male	49.9	92.8	7.2	
Transgender, non-binary, and other scarce gender identity minorities	8.6	94.0	6.0	
Mean age (± SD)	31.3 (11.5)	31.2 (11.5)	33.9 (11.9)	0.120
Schooling				0.008
Up to graduate	68.4	96.4	3.6	
Post-graduate level	31.6	92.5	7.5	
Race/color				0.317
Non white	39.9	94.3	5.7	
White	60.1	95.7	4.3	
Income in minimum salaries				0.280
<1	40.3	96.4	3.6	
1-5	39.1	94.6	5.4	
>5	20.6	93.5	6.5	
Type of work during the pandemic				<0.001
At home	36.8	95.7	4.3	
Outside the house	35.1	91.6	8.4	
Not working	28.1	98.5	1.5	
Health-related characteristics				
Number of chronic diseases				0.632
0	68.1	94.7	5.3	
1	26.7	96.1	3.9	
2+	5.2	96.0	4.0	
Depression				0.022
No	75.3	94.2	5.8	
Yes	24.7	97.9	2.1	
COVID-19 preventive characteristics				
Absence of a close person with COVID-19				0.002
No	76.7	99.1	0.9	
Yes	23.3	94.0	6.0	
Social distancing adherence				0.070
No	38.5	93.6	6.4	
Yes	61.5	96.2	3.8	
Proper facemask use				0.029
No	14.5	91.5	8.5	
Yes	85.5	95.8	4.2	
Social support characteristics				
Social connectedness before the pandemic				0.937
No	12.4	95.0	5.0	
Yes	87.6	95.2	4.8	
Sexual or gender discrimination from immediate families				0.481
Never/Sometimes	81.2	94.9	5.1	
Often	18.8	96.2	3.8	
Mean number of people in the household (± SD)	2.7 (1.4)	2.7 (1.4)	2.9 (1.3)	0.531
Mean loneliness score (± SD)	5.8 (1.6)	5.8 (1.6)	5.6 (1.3)	0.503
N total	976	929	47	-

Figure 1 shows the social support characteristics by gender identity. The prevalence of social connectedness before the pandemic was high (~83%) and did not vary across

gender identity categories (p=0.363) (Figure 1A). On the other hand, the number of people living in the household was significantly lower among transgender, non-binary, and other scarce gender identity minority's individuals (2.3; 95% CI 2.0 – 2.6; p=0.003) (Figure 1C), whereas sexual and gender discrimination from immediate families (29.8%; 95% CI 20.3; 40.7%; p=0.020) and mean loneliness scores (6.2; 95% CI 5.9 – 6.6; p<0.001) were significantly higher among them (Figure 1B and 1D).

Figure 1 – Prevalence of social connectedness before the pandemic (A), sexual and gender discrimination from immediate families (B), number of people in the household (C), and loneliness (D) according to gender identity: LGBT+ health survey. August-November. 2020.

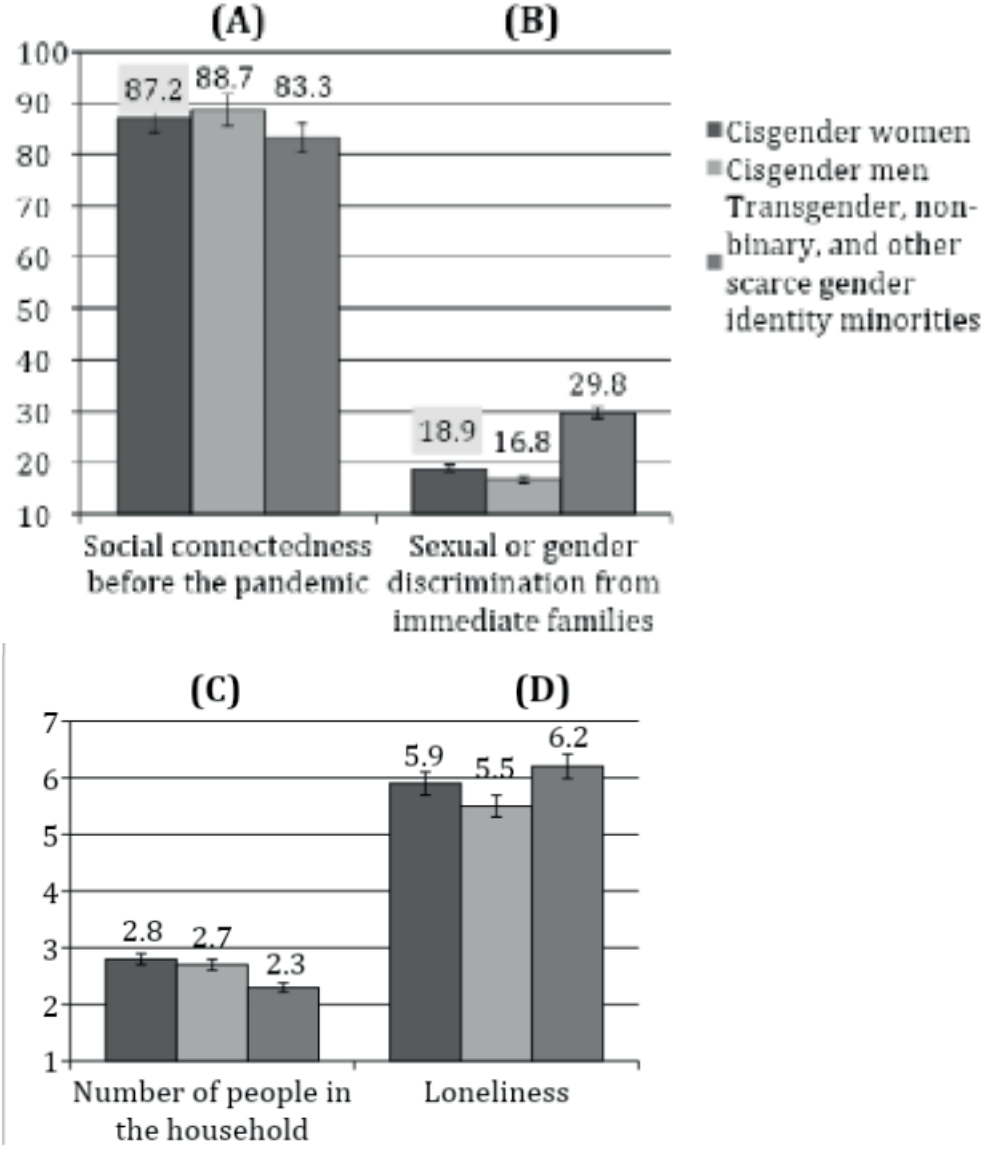


Table 2 shows univariate and multivariate results of the associations between social support characteristics and testing positive for COVID-19. In univariate models, gender identity, age, schooling, income in minimum salaries, type of work during the pandemic,

depression, absence of a close person with COVID-19, social distancing adherence, and proper facemask use showed p < 0.20 and were included as covariates in the multivariate model. In the multivariate analysis, income in minimum salaries evidenced multicollinearity (VIF>2, data not shown) and was excluded from the final model. Testing positive for COVID-19 was positively associated only with the number of people in the household (OR = 1.29; 95% CI 1.02-1.63). Considering models with interaction terms, we found a statistically significant effect modification of age with sexual and gender discrimination from immediate families (p=0.036).

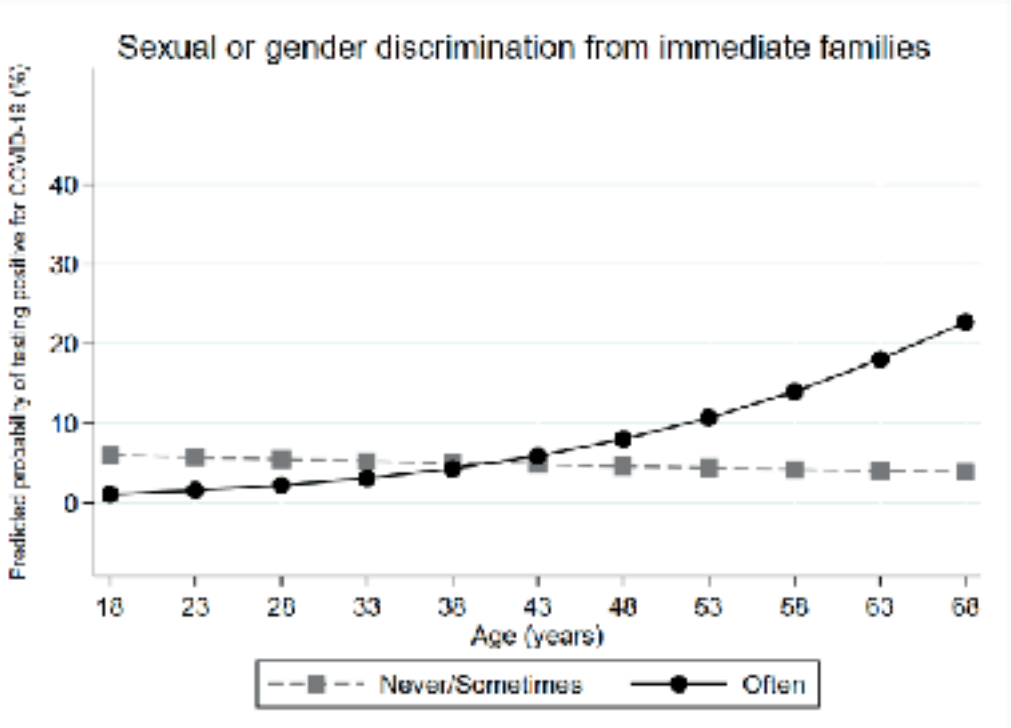
Table 2 – Univariate and multivariate association between social network characteristics and testing positive for COVID-19: LGBT+ health survey. August-November. 2020.

	Univariate models			Multivariate model		
	OR	95% CI	*P value*	OR	95% CI	*P value*
Social connectedness before the pandemic:						
Yes	1.00			1.00		
No	0.97	0.40-2.32	0.937	0.76	0.29-1.97	0.568
Sexual or gender discrimination from immediate families						
Never/Sometimes	1.00			1.00		
Often	0.75	0.33-1.69	0.483	0.75	0.37-1.80	0.524
Number of people in the household	1.06	0.87-1.32	0.531	**1.29**	**1.02-1.63**	**0.036**
Loneliness score	0.93	0.78-1.13	0.503	1.16	0.93-1.44	0.197
Interaction with age						
Social connectedness before the pandemic X age	-	-	-	0.93	0.85-1.02	0.104
Sexual or gender discrimination from immediate families X age	-	-	-	**1.08**	**1.01-1.17**	**0.036**
Number of people in the household X age	-	-	-	1.00	0.98-1.02	0.673
Loneliness X age	-	-	-	1.00	0.98-1.02	0.776

Note: OR: Odds Ratio, based on Logistic Regression models. 95% CI: 95% Confidence Interval. Multivariate model adjusted for gender identity, age, schooling, type of work during the pandemic, depression, absence of a close person COVID-19, social distancing adherence, and proper facemask use. GOF: 739.4 p=0.965; N=925.

Figure 2 shows the predicted probabilities of testing positive for COVID-19 according to age, after splitting by sexual and gender discrimination from immediate families categories. The predicted probability of testing positive for COVID-19 increases with age only among those individuals who reported sexual or gender discrimination from immediate families more often. For example, the predicted probability of testing positive for COVID-19 varied from 3.9% (95% CI 0.1; 8.9) among those individuals who never/sometimes reported sexual or gender discrimination from immediate families to 22.7% (95% CI 0.1; 52.5) among those individuals who often reported sexual or gender discrimination from immediate families at 68 years-old.

Figure 2 – Predicted probability of testing positive for COVID-19 according to sexual or gender discrimination from immediate families at different ages: LGBT+ health survey. August-November. 2020.



DISCUSSION

This study found an overall prevalence of testing positive for COVID-19 of 4.8%, higher than previously reported in Brazil by May 2020 (1.7%) [3]. As the current survey considered the period until November 2020, the increased infection rate in our study was expected. We found that the number of people living in the household was lower among transgender, non-binary, and other scarce gender identity minority individuals, whereas LGBT+ discrimination from immediate families and loneliness were higher among them. The only social support characteristic positively associated with testing positive for COVID-19 in the Brazilian sexual and gender minorities was the number of people in the household. Moreover, at higher ages, people who reported sexual or gender discrimination from immediate families more often were more inclined to test positive for COVID-19.

Social support from friends is essential for sexual and gender minorities to deal with social stress and prejudice [4,6], leading them to rely on friends rather than families primarily [18]. During social distancing measures, face-to-face support from friends has widely decreased, although it did not reflect a higher risk of testing positive for COVID-19. One hypothesis is that being more socially active on social media allows increased support that may buffer the impact of geographic isolation from friends [19]. Being connected in

online environments with friends and community-based organizations should be broadly encouraged [6]. It can soften mental health problems [1,9–13], enhance adherence to social distancing measures and decrease COVID-19 dissemination.

During the COVID-19 pandemic, another concern regarding sexual and gender minorities was the higher rates of family violence [8]. The Brazilian Ministry of Health published some recommendations to identify vulnerable psychosocial groups and ensure access to mental health in the public health system [1]. However, concrete practices are also needed. The Brazilian sexual and gender minorities frequently suffer sexual and/or gender discrimination and even expulsion from home [20]. Moreover, 61% of notified violence in 2015-2017 against sexual and gender minorities occurred at home, 36.6% were recurrent, and almost half were against transgender individuals 7. Therefore, transgender individuals require more attention from health professionals due to poorer social support from families and institutions [21], increased sexual or gender discrimination, emotional problems, and vulnerability to COVID-19 exposure [22].

Furthermore, we found a statistically significant interaction of age and sexual or gender discrimination from immediate families with testing positive for COVID-19, despite older generations showing lower testing rates in the general population [15]. Among older LGBT+ adults, those partnered or married tend to primarily focus their social network on the immediate family and have a higher frequency of contact with friends [23]. Therefore, the sexual or gender discrimination from immediate families in that group might evade stay-at-home orders. One practice of the primary care providers is dealing with situations of vulnerability [24], consequently supporting communities during social distancing. It includes principles of the Lesbian, Gay, Bisexual, Travesti, and Transgender National Integral Health Police and features of primary care services (i.e., first-contact access; long-term person-focused care; comprehensive care; and coordinated care when it must be sought elsewhere).

Although higher rates of loneliness during the pandemic [11–13,] loneliness was not associated with testing positive for COVID-19. We posit that loneliness might decrease compliance to social distancing measures and enhance susceptibility to COVID-19, but we did not confirm this hypothesis. In Brazil, loneliness was reported as the main problem during the pandemic by 11% of the sexual and gender minority individuals [12]. Therefore,

loneliness seems more like a negative consequence of the pandemic than a factor associated with testing positive for COVID-19.

Corroborating a previously published meta-analysis [25], living with more residents avoids keeping physical distancing from each other and increases the odds of testing positive for COVID-19. The coronavirus transmission was lower with a physical distance of one meter or more [25]. This scenario could be worse in favelas, a subnormal agglomeration from urban poverty areas, due to higher cohabitants, precarious conditions of basic sanitation, and less access to health goods and services [26]. Nevertheless, we did not test this hypothesis. Further studies could test it and also verify the current situation of social support of the Brazilian sexual and gender minorities after three years of the pandemic. In January 2023 the scenario has been quite different from the first year of the pandemic: Brazil shows 631.275 follow-up COVID-19 cases, a lower number of COVID-19-related deaths (104 in the last three days), and COVID-19 vaccination coverage with the second or single dose about 80% [27]. Therefore, the social distancing measures are no longer mandatory and facemasks are required only in airports [28] and health services.

Our study has some strengths and limitations. First, online surveys decrease the response rate and are limited to respondents with Internet access. Second, we did not consider sample weights by Brazilian regions, precluding national representativeness. And third, the outcome included any COVID-19 test the respondent performed, probably overestimating the result. However, the average number of RT-PCR tests in Brazil, considered the gold standard for COVID-19 diagnoses, was very low during the first year of the pandemic [14]. Concerning the strengths of the present study, it consists of anonymous data from the respondents, which is the most recommended type of survey for accessing sexual and gender minorities [29]. Moreover, this is the first study in Brazil with broader coverage of participants from the five geographical regions and encompasses questions regarding a wide range of health dimensions.

CONCLUSION

Brazil urges public policies to control the coronavirus spread effectively. It consists of disseminating COVID-19 testing and supporting sexual and gender minorities with elevated positivity COVID-19 rates and lower social support, such as transgender, non-binary, and

other scarce minorities. Those living with more people and those aged individuals who often suffer sexual or gender discrimination from immediate families were also at higher COVID-19 risk.

REFERÊNCIAS

1. Bordiano G, Liberal SP, Lovisi GM, et al. COVID-19, social vulnerability and mental health of LGBTQIA+ populations. Cad Saude Publica; 37. Epub ahead of print 1 April 2021. DOI: 10.1590/0102-311X00287220.

2. Sears B, Conron KJ, Flores AR. THE IMPACT OF THE FALL 2020 COVID-19 SURGE ON LGBT ADULTS IN THE US. Los Angeles, February 2021.

3. Torres T, Hoagland B, Bezerra D, et al. Impact of COVID-19 Pandemic on Sexual Minority Populations in Brazil: An Analysis of Social/Racial Disparities in Maintaining Social Distancing and a Description of Sexual Behavior. AIDS Behav 2020; 1–12.

4. Meyer IH. Prejudice, Social Stress, and Mental Health in Lesbian, Gay, and Bisexual Populations: Conceptual Issues and Research Evidence. Psychological Bulletin. Epub ahead of print 2003. DOI: 10.1037/0033-2909.129.5.674.

5. De Jesus M, Ware D, Brown AL, et al. Social-environmental resiliencies protect against loneliness among HIV-Positive and HIV- negative older men who have sex with men: Results from the Multicenter AIDS Cohort Study (MACS). Soc Sci Med; 272. Epub ahead of print 1 March 2021. DOI: 10.1016/j.socscimed.2021.113711.

6. Garcia J, Vargas N, Clark JL, et al. Social isolation and connectedness as determinants of well-being: Global evidence mapping focused on LGBTQ youth. Glob Public Health 2020; 15: 497–519.

7. Pinto IV, Andrade SS de A, Rodrigues LL, et al. Profile of notification of violence

against lesbiangay, bisexual, transvestite and transsexual people recorded in the national information system on notifiable diseases, brazil, 2015-2017. Rev Bras Epidemiol 2020; 23: 1–13.

8. Xue J, Chen J, Chen C, et al. The hidden pandemic of family violence during COVID-19: Unsupervised learning of tweets. J Med Internet Res. Epub ahead of print 2020. DOI: 10.2196/24361.

9. Salerno JP, Devadas J, Pease M, et al. Sexual and Gender Minority Stress Amid the COVID-19 Pandemic: Implications for LGBTQ Young Persons' Mental Health and Well--Being. Public Health Reports. Epub ahead of print 2020. DOI: 10.1177/0033354920954511.

10. Gonzales G, Loret de Mola E, Gavulic KA, et al. Mental Health Needs Among Lesbian, Gay, Bisexual, and Transgender College Students During the COVID-19 Pandemic. J Adolesc Heal. Epub ahead of print 2020. DOI: 10.1016/j.jadohealth.2020.08.006.

11. Moore SE, Wierenga KL, Prince DM, et al. Disproportionate Impact of the COVID-19 Pandemic on Perceived Social Support, Mental Health and Somatic Symptoms in Sexual and Gender Minority Populations. J Homosex. Epub ahead of print 2021. DOI: 10.1080/00918369.2020.1868184.

12. #Voltelgbt. Diagnóstico LGBT+ na pandemia: desafios da comunidade LGBT+ no contexto de isolamento social em enfrentamento à pandemia de Coronavírus. São Paulo: #votelgbt, 2020.

13. Gato J, Barrientos J, Tasker F, et al. Psychosocial Effects of the COVID-19 Pandemic and Mental Health among LGBTQ+ Young Adults: A Cross-Cultural Comparison across Six Nations. J Homosex 2021; 68: 612–630.

14. Kameda K, Barbeitas MM, Caetano R, et al. Testing COVID-19 in Brazil: Fragmented efforts and challenges to expand diagnostic capacity at the Brazilian Unified Natio-

nal Health System. Cad Saude Publica; 37. Epub ahead of print 2021. DOI: 10.1590/0102-311X00277420.

15. Torres TS, Luz PM, Coelho LE, et al. SARS-CoV-2 testing disparities across geographical regions from a large metropolitan area in Brazil : Results from a web-based survey among individuals interested in clinical trials for COVID-19 vaccines. Brazilian J Infect Dis 2021; 25: 101600.

16. Torres JL, Goncalves GP, De Araujo Pinho A, et al. The Brazilian LGBT+ Health Survey: methodology and descriptive results. Cad Saude Publica 2021; 37: 1–11.

17. Hughes ME, Waite LJ, Hawkley LC, et al. A short scale for measuring loneliness in large surveys: Results from two population-based studies. Res Aging 2004; 26: 655–672.

18. Frost DM, Meyer IH, Schwartz S. Social support networks among diverse sexual minority populations. Am J Orthopsychiatry 2016; 86: 91–102.

19. Escobar-Viera CG, Whitfield DL, Wessel CB, et al. For better or for worse? A systematic review of the evidence on social media use and depression among lesbian, gay, and bisexual minorities. Journal of Medical Internet Research; 20. Epub ahead of print 1 July 2018. DOI: 10.2196/10496.

20. Braga IF, Oliveira WA de, Silva JL da, et al. Family violence against gay and lesbian adolescents and young people: a qualitative study. Rev Bras Enferm 2018; 71: 1220–1227.

21. Abreu PD de, Araújo EC de, Vasconcelos EMR de, et al. Dynamics of the social network of young female transsexuals that live and deal with HIV/AIDS. Rev Bras Enferm 2019; 72: 1251–1257.

22. Macedo Neto AO, Silva SAG, Gonçalves GP, et al. COVID-19 vulnerability among Brazilian sexual and gender minorities: a cross-sectional study. Cad Saude Publica 2022;

38: e00234421.

23. Kim HJ, Fredriksen-Goldsen KI, Bryan AEB, et al. Social network types and mental health among lgbt older adults. Gerontologist 2017; 57: S84–S94.

24. Daumas RP, Silva G, Tasca R, et al. The role of primary care in the Brazilian health-care system: limits and possibilities for fighting COVID-19. Reports Public Heal 2020; 36: e00104120.

25. Derek K Chu, Elie A Akl, Stephanie Duda, Karla Solo, Sally Yaacoub, Holger J Schünemann on behalf of the C-19 SUR, Authors GE (SURGE) study. Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis. Lancet 2020; 395: 1973–87.

26. Pereira RJ, Nascimento GNL d., Gratão LHA, et al. The risk of COVID-19 transmission in favelas and slums in Brazil. Public health 2020; 183: 42–43.

27. Brasil. Ministério da Saúde. Covid-19: situação epidemiológica do Brasil neste domingo (1o). Disponível em https://www.gov.br/saude/pt-br/coronavirus/informes-diarios--covid-19/covid-19-situacao-epidemiologica-do-brasil-neste-domingo-1deg. Acesso em 25 jan 2023.

28. Brasil. Ministério da Saúde. Agência Nacional de Vigilância Sanitária. RESOLUÇÃO - RDC No 761, DE 23 DE NOVEMBRO DE 2022. Brasil, 2022. Disponível em http://antigo.anvisa.gov.br/documents/10181/5993637/%281%29RDC_761_2022_.pdf/5d23e94e-3da-6-486e-86be-b41ab28ff695. Acesso em 25 jan 2023.

29. Office GE. National LGBT Survey: Summary report. Ministerial Foreword. UK Government.