

A cross-sectional study of the COVID-19 pandemic impacts among Brazilian sexual and gender minorities

Estudo transversal dos impactos da pandemia de COVID-19 em minorias sexuais e de gênero brasileiras

Estudio transversal de los impactos de la pandemia de COVID-19 en las minorías sexuales y de género brasileñas

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Abstract

The COVID-19 pandemic exerted major impacts on the entire population, but some groups such as sexual and gender minorities have been disproportionately affected. Therefore, we aim at assessing the impacts on the social life and mental health of Brazilian sexual and gender minorities during the COVID-19 pandemic. This is a cross-sectional nationwide study conducted between September and October 2020. Participants were recruited through convenience sampling (snowball), being invited to answer an online questionnaire. The participants were invited to participate by social networks and websites directed to the LGBT+ population over 18 years old. This study included 659 sexual and gender minorities from all five Brazilian regions. The main impacts caused by the COVID-19 pandemic reported by the participants were anxiety (73.5%), stress (71%), loneliness (59.6%), sleep pattern changes (69%) and income reduction (36.9%). Participants with low educational level presented higher income reduction than participants with high educational level (0.61, 95% CI 0.48-0.77) and high income (0.46, 95% CI 0.34-0.62). Low income (1.14, 95% CI 1.03-1.26) and being lesbian (1.13, 95% CI 1.01-1.26) are related to changes in sleep patterns. Totally isolated participants presented high stress rates. The LGBT+ population presented high economic and emotional impacts during COVID-19 pandemic. The results of this study highlight the need for health public policies directed for sexual and gender minorities.

Keywords: LGBT population; Sexual and gender minorities; COVID-19; Mental Health; Economic impacts.

Resumo

A pandemia de COVID-19 causou grandes impactos em toda a população, mas alguns grupos como as minorias sexuais e de gênero foram afetados de forma desproporcional. Assim, o objetivo deste estudo foi avaliar os impactos na vida social e na saúde mental das minorias sexuais e de gênero brasileiros durante a pandemia de COVID-19. Trata-se de um estudo transversal de abrangência nacional, on-line, realizado entre setembro e outubro de 2020. Os participantes foram recrutados por meio de amostragem por conveniência (bola de neve) através de redes sociais e sites direcionados à população LGBT+ acima de 18 anos. Este estudo incluiu 659 indivíduos de todas as cinco regiões brasileiras. Os principais impactos causados pela pandemia de COVID-19 relatados pelos participantes foram ansiedade (73,5%), estresse (71%), solidão (59,6%), alterações no padrão de sono (69%) e redução de renda (36,9%). Participantes com baixa escolaridade apresentaram maior redução de renda do que participantes com alta escolaridade (0,61, IC 95% 0,48-0,77) e alta renda (0,46, IC 95% 0,34-0,62). Ser de baixa renda (1,14, IC 95% 1,03-1,26) e ser lésbica (1,13, IC 95% 1,01-1,26) estão relacionados a alterações nos padrões de sono. Participantes totalmente isolados apresentaram altas taxas de estresse. A população LGBT+ apresentou altos impactos econômicos e emocionais durante a pandemia de COVID-19. Os resultados deste estudo evidenciam a necessidade de políticas públicas de saúde direcionadas às minorias sexuais e de gênero.

Palavras-chave: População LGBT; Minorias sexuais e de gênero; COVID-19; Saúde mental; Impactos econômicos.

Resumen

La pandemia de COVID-19 tuvo importantes repercusiones en toda la población, pero algunos grupos, como las minorías sexuales y de género, se vieron afectados de forma desproporcionada. Así, el objetivo de este estudio fue evaluar los impactos en la vida social y en la salud mental de las minorías sexuales y de género brasileñas durante la pandemia de COVID-19. Se trata de un estudio transversal online de ámbito nacional realizado entre septiembre y octubre de 2020. Los participantes fueron reclutados por muestreo de conveniencia (snowballing) a través de las redes sociales y sitios web dirigidos a la población LGBT+ mayor de 18 años. Este estudio incluyó a 659 individuos de las cinco regiones brasileñas. Los principales impactos causados por la pandemia de COVID-19 señalados por los participantes fueron la ansiedad (73,5%), el estrés (71%), la soledad (59,6%), los cambios en el patrón de sueño (69%) y la reducción de ingresos (36,9%). Los participantes con bajo nivel educativo mostraron una mayor reducción de los ingresos que los participantes con alto nivel educativo (0,61; IC del 95%: 0,48-0,77) y con altos ingresos (0,46; IC del 95%: 0,34-0,62). Tener bajos ingresos (1,14; IC 95%: 1,03-1,26) y ser lesbiana (1,13; IC 95%: 1,01-1,26) estaban relacionados con los cambios en los patrones de sueño. Los participantes totalmente aislados mostraron altos índices de estrés. La población LGBT+ presentó un alto impacto económico y emocional durante la pandemia de COVID-19. Los resultados de este estudio ponen de manifiesto la necesidad de políticas de salud pública dirigidas a las minorías sexuales y de género.

Palabras clave: Población LGBT; Minorías sexuales y de género; COVID-19; Salud mental; Impacto económico.

1. Introduction

The new coronavirus pandemic caused by SARS-COV-2 infected 61 million people and caused almost 1.5 million deaths until November 2020 worldwide (John Hopkins, 2021). Therefore, new behaviors had to be adopted all over the world to contain the virus and prevent its faster dissemination (Bl et al., 2020; McFadden et al., 2020). During the quarantine period, the Brazilian population had its circulation restricted, and workplaces and educational institutions were closed, as well as all activities that provided non-essential services (Alexandrova et al., 2021; Araújo et al., 2020; Bl et al., 2020). All of these changes led to work and financial instability, changes in family relationships and interruption of social life; in addition to the imminent risk of illness and death (Abrams et al., 2020; Gonzales et al., 2020; González-Sanguino et al., 2020).

Although the virus does not have discriminatory capacities, the most marginalized groups, such as the LGBT+ community, tend to suffer disproportionate impacts when compared to the general population, reflecting on social life and mental health (Kang et al., 2020; Li et al., 2020) (Bowleg, 2020). Mainly in more neglected groups, part of this population, such as transgender, female and black-skinned individuals, reflects more specific problems (Al-Ali, 2020; Balsam et al., 2011; Banerjee & Nair, 2020; Gausman & Langer, 2020). However, these fundamental factors are often overlooked and rarely incorporated into behavioral research and clinical care (Spagnolo et al., 2020).

Historically, in the cultural and social contexts, lesbians, gays, bisexuals, transsexuals, and other sexual and gender minorities have greater difficulty in accessing health services, face family relationship problems, have higher levels of psychoactive substance use, and live with issues of stigma and prejudice daily (Bowleg, 2020; Hafi & Uvais, 2020; Sanchez et

al., 2020). This population has already experienced the social impacts of the HIV pandemic, which to the present day reflects negatively on this group in comparison to the general population (Emlet et al., 2019). Although the characteristics of this pandemic are different from the HIV pandemic, discriminatory impacts and the lack of public commitment in the search for equality favor the vulnerability of the LGBT+ population in the face of COVID-19 (Santos et al., 2020; Wallach et al., 2020).

Furthermore, considering the complexity of the impacts of a major pandemic on the LGBT population, there is a need to understand the seriousness of the repercussions of the COVID-19 pandemic on this population, since sexual and gender minorities have suffered and still suffer impacts which are different than those experienced by the general population in other epidemics around the world (Gausman & Langer, 2020; Santos et al., 2020; Wallach et al., 2020). Thus, this study aims at assessing the effects on the social life and mental health of Brazilian sexual and gender minorities during the COVID-19 pandemic.

2. Methodology

This is an online cross-sectional study performed in all Brazilian territory. We included people over 18 years old who considered themselves as belonging to sexual and gender minorities (self-declared lesbian, gay, bisexual, transsexual, or other sexual and gender minorities) with Internet access.

Data collection was carried out between September 14th and October 3rd, 2020 (3 weeks). All the respondents participated in a standardized interview. An online semi-structured questionnaire was created using REDcap electronic data capture tools hosted at the University of Florida (UF) (Harris et al., 2009). LGBT individuals within the target population were invited to participate through groups on social media (WhatsApp, Facebook and Instagram), as well as to share the research invitation among their contacts (snowball technique). The invitations were made by the researchers in free posts.

The instrument included socio-demographic information: age, gender assignment, sexual orientation, gender identity, race/skin color, household arrangement, relationship status (single, dating or married/living with a partner), education level (secondary education level: complete or incomplete, and high education level: graduate complete or incomplete), employment status (formal: work with signed contract, informal: self-employed work, unemployed, and students), household income (Total household income divided by the total number of residents - Minimum Wage in Brazil = 1,100 BRL), and social isolation (totally isolated: more than five days a week at home; partially isolated: less than 5 five days a week at home, leaves home only for essential activities, and no isolated: has not changed social life by the pandemic); health impacts: medical condition (at least one) according to CDC classification (chronic disease or moderate to severe asthma, cardiovascular diseases, cancer, bone marrow transplant, using immunosuppressive medications, kidney disease on dialysis, liver failure, severe hypertension and diabetes) (CDC, 2020), and mental health impacts (anxiety, stress, loneliness and changes in sleep patterns) were reported by the participants as "increased", "decreased" or "the same".

A checkbox was arranged with the main economic impacts (income reduction, change of address, interruption of studies, shared housing, dismissals, cash loans and sale of goods, among others); in addition, a field was opened for recording other unlisted impacts.

The estimated sample size was 315 individuals to evaluate changes in mental health variables, based on 8% prevalence of depression (Martins et al., 2019) and a minimum difference of 3% with a 95% of confidence. This estimate was considered because it represents a common mental health disorder in the Brazilian population and allows us to estimate other impacts on the mental health of the population. Considering a 20% loss rate, the necessary sample size was corrected to 378 individuals. A pilot study was conducted with the first 20 participants to assess potential communication failures, continuity and/or feasibility. Modifications were made promptly to guarantee data quality. Participants who signed the consent

term and answered less than 20% of the questionnaire (socio-demographic characteristics or less) were excluded from the analysis. The response rate was 82.4% (total of participants who signed the consent term and completed the questionnaire).

The categorical variables were summarized using absolute frequencies and percentages, and the continuous variables through mean values and standard deviation or by median and interquartile range. The Chi-square test and Fisher's exact test were used to compare proportions. For all the analyses, a significance level of 5% and a power of 80% were adopted. The association between exposure variables and outcomes was assessed using Poisson regression with robust variance. The statistical analysis was performed using R for Statistical Computing, Vienna, Austria (*R: The R Project for Statistical Computing*, n.d.).

The ethical principles of autonomy, beneficence, non-maleficence and justice were considered and followed concerning the Regulatory Guidelines and Norms for Research involving Human Beings (Resolution 466/12). The project was approved by the Research Ethics Committee of the Porto Alegre Federal University of Health Sciences (UFCSA) (4,270,572). All the participants consented to participate in the study by selecting the checkbox and had the option to download the term sheet.

3. Results

In total, 659 participants answered the questionnaire. The mean age was 29.8±8.6 years old (ranging from 18 to 62 years old). The representation of the participants is shown in Table 1, which reflects higher participation of male (64.3%), cisgender (93.5%), and gay (58.4%) individuals.

Table 1 – Frequency of gender assignment, gender identify, and sexual orientation of the LGBT+ population.

	Total	Percentage (%)
Gender assignment		
Male	424	64.3
Female	235	35.7
Gender identity		
Cisgender	616	93.5
Transgender woman	5	0.8
Transgender man	6	0.9
Non-binary	29	4.4
Queer gender	1	0.2
Don't know	2	0.3
Sexual orientation		
Gay	385	58.4
Bisexual	135	20.5
Lesbian	102	15.5
Asexual	3	0.5
Demisexual	2	0.3
Pansexual	12	1.8
No answer	16	2.4

Source: Authors.

The sociodemographic and behavioral characteristics reflect high education level (92.1%) and high prevalence of white skin color (74.7%), and occupation shows that 55.7% of the participants were working formally during the quarantine.

Additionally, high substance use was referred to by the participants, namely: alcohol (80.1%) and illicit substances (46.2%). Significant differences were observed between the genders regarding education level, relationship status, housing arrangement, income and type of occupation ($p < .05$) (Table 2).

Table 2 – Sociodemographic and behavioral characteristics of the LGBT+ population according to gender assignment

Characteristics	Total n (%)	Gender assignment n (%)		p-value ^b
		Female	Male	
Mean age (SD)	29.8 (8.7)	27.3 (8.6)	31.1 (8.5)	<0.01 ^a
Schooling level				0.04
Secondary	52 (7.9)	26 (11.1)	26 (6.1)	
High	606 (92.1)	209 (88.9)	397 (93.9)	
Skin color/Race				0.47
Black/Brown	158 (23.9)	50 (21.3)	108 (25.5)	
White	492 (74.7)	182 (77.4)	310 (73.1)	
Indigenous/Yellow	9 (1.4)	3 (1.3)	6 (1.4)	
Relationship status				<0.01
Single	338 (51.4)	92 (39.1)	246 (58.2)	
Dating	161 (24.5)	76 (32.3)	85 (20.1)	
Married	159 (24.1)	67 (28.5)	92 (21.7)	
Housing arrangement				<0.01
Live alone	165 (25.2)	37 (15.7)	128 (30.5)	
Lives with family members/ partners/friends	490 (74.8)	198 (84.3)	292 (69.5)	
Income (per person)^c				<0.01
One wage or less	172 (26.4)	73 (31.1)	99 (23.8)	
1-3 wages	256 (39.3)	110 (46.8)	146 (35.1)	
3 or more wages	223 (34.3)	52 (22.1)	171 (41.1)	
Employment status				<0.01
Formal	362 (55.7)	106 (45.5)	256 (61.4)	
Informal	104 (16)	32 (13.7)	72 (17.3)	
Unemployed	47 (7.2)	11 (4.7)	36 (17.3)	
Students	137 (21.1)	84 (36.1)	53 (12.7)	
Social Isolation				0.2
Totally	285 (46.4)	114 (51.1)	171 (43.7)	
Partially	216 (35.2)	72 (31.3)	144 (36.8)	
No isolated	113 (18.4)	37 (16.3)	76 (19.4)	
Infection by COVID-19	31 (5.0)	15 (6.7)	16 (4.0)	0.2
Medical condition	130 (19.7)	43 (18.3)	87 (20.5)	0.5

^aMann-Whitney test ^bChi-square test ^cIncome considered as Minimum Wage in Brazil: 1,100 BRL. Source: Authors.

Anxiety (73.5%), stress (71%), loneliness (59.6%), changes in sleep patterns (69%) and income reduction (36.9%) were the most common impacts self-reported by the participants. Some economic factors such as income reduction (42.1% vs. 34%, $p = 0.04$), change of address (28.5% vs. 13%, $p < .01$), shared housing (12.8% vs. 4.5%, $p < .01$) and sale of goods (8.9% vs. 2.8%, $p < .01$) exerted greater impacts on female than on male individuals, respectively. However, loneliness impacted more

on males than on females (62.8% vs. 53.7%, $p = 0.03$). Bisexual individuals presented higher emotional impacts than other sexual minorities (Table 3).

Table 3 – Self-reported impacts of COVID-19 on the LGBT+ population according to gender assignment and to sexual orientation

	Total N (%)	Sexual orientation			p-value ¹
		Gay N (%)	Lesbian N (%)	Bisexual N (%)	
Anxiety	438 (73.5)	260 (74.7)	67 (70.5)	98 (75.4)	0.03
Stress	423 (71)	240 (69.0)	71 (74.7)	98 (75.4)	0.01
Changes in sleep patterns	411 (69)	229 (65.8)	74 (77.9)	91 (70.0)	0.07
Loneliness	355 (59.6)	216 (62.0)	48 (50)	83 (63.8)	0.01
Income reduction	243 (36.9)	128 (33.2)	40 (39.2)	60 (41.7)	0.1
Change of address	122 (18.5)	47 (12.2)	36 (35.3)	34 (23.6)	<0.01
Interruption of studies	67 (10.2)	41 (10.6)	12 (11.8)	13 (9.0)	0.7
Shared housing	49 (7.4)	17 (4.4)	17 (16.7)	12 (8.3)	<0.01
Dismissals	48 (7.3)	26 (6.7)	7 (6.9)	12 (8.3)	0.8
Cash loans	45 (6.8)	31 (8.0)	4 (3.9)	7 (4.9)	0.2
Sale of goods	33 (5)	11 (2.8)	10 (9.8)	8 (5.6)	0.01

¹Chi-square test. Source: Authors.

The multivariate model (Table 4) presented higher impacts for all outcomes observed among participants aged less than 40 years old. Participants earning less than one wage (1.14, 95% CI 1.03-1.26) and lesbians (1.13, 95% CI 1.01-1.26) presented high risk of changes in sleep patterns. Less stress was observed in participants in partially isolated, 0.86 (95% CI 0.75-0.97), and not isolated, 0.82 (95% CI 0.72-0.93). The participants living alone during the pandemic presented high risk of feeling loneliness in all models.

Table 4 – Multivariate analysis of the socioeconomic and behavioral characteristics associated with anxiety, stress, changes in sleep patterns, and loneliness in the Brazilian LGBT+ population.

Variables	Anxiety		Stress		Changes in sleep patterns		Loneliness	
	Model 1 PR (95% CI)	Model 2 PR (95% CI)	Model 1 PR (95% CI)	Model 2 PR (95% CI)	Model 1 PR (95% CI)	Model 2 PR (95% CI)	Model 1 PR (95% CI)	Model 2 PR (95% CI)
Age (in years old)								
Less than 30	1.22 (1.06 – 1.40)	1.23 (1.07 – 1.42)	1.32 (1.15 – 1.52)	1.33 (1.16 – 1.54)	1.12 (0.98 – 1.29)	1.12 (0.97 – 1.30)	1.25 (1.09 – 1.43)	1.25 (1.08 – 1.44)
31 to 40	1.2 (1.02 – 1.38)	1.19 (1.02 – 1.39)	1.31 (1.13 – 1.52)	1.33 (1.14 – 1.55)	1.07 (0.92 – 1.25)	1.08 (0.93 – 1.26)	1.20 (1.03 – 1.39)	1.19 (1.02 – 1.38)
More than 41	1	1	1	1	1	1	1	1
Income (per person)								
1 wage or less	1.00 (0.90 – 1.11)	1.00 (0.90 – 1.11)	1.07 (0.97 – 1.19)	1.07 (0.96 – 1.18)	1.13 (1.02 – 1.26)	1.14 (1.03 – 1.26)	1.06 (0.94 – 1.19)	1.06 (0.95 – 1.18)
1-3 wages	1.05 (0.96 – 1.14)	1.05 (0.96 – 1.15)	1.06 (0.97 – 1.17)	1.06 (0.97 – 1.16)	1.02 (0.93 – 1.13)	1.01 (0.92 – 1.11)	1.02 (0.92 – 1.12)	1.03 (0.93 – 1.13)
3 or more wages	1	1	1	1	1	1	1	1
Housing arrangement								
Lives alone	0.96 (0.88 – 1.06)	0.96 (0.88 – 1.05)	0.97 (0.89 – 1.07)	0.98 (0.89 – 1.07)	0.97 (0.88 – 1.07)	0.98 (0.89 – 1.08)	1.15 (1.04 – 1.26)	1.14 (1.04 – 1.26)
Lives with family/friends	1	1	1	1	1	1	1	1
Sexual Orientation								
Gay	-	1.03 (0.94 – 1.13)	-	0.98 (0.89 – 1.08)	-	1.01 (0.91 – 1.11)	-	1.00 (0.90 – 1.11)
Lesbian	-	0.98 (0.86 – 1.10)	-	1.03 (0.92 – 1.16)	-	1.13 (1.01 – 1.26)	-	0.90 (0.79 – 1.02)
Bisexual	-	1	-	1	-	1	-	1
Medical condition								
Yes	-	0.97 (0.89 – 1.06)	-	0.95 (0.87 – 1.04)	-	1.01 (0.92 – 1.11)	-	0.98 (0.88 – 1.09)
No	-	1	-	1	-	1	-	1

PR: Prevalence Ratio. Model 1: Age, Income (per person), and Housing arrangement. Model 2: Age, Income (per person), Housing arrangement, Sexual orientation, and medical condition. Source: Authors.

4. Discussion

This is the first Brazilian national study to assess the impacts of the COVID-19 pandemic on the LGBT+ population. Our results showed a significant impact that was self-reported by the participants on the levels of anxiety, stress, loneliness, income, and changes in sleep patterns. Factors such as unemployment, interruption of studies, reduced income, and social isolation seem to exert a major impact mainly on the mental health of this population, making it more difficult to cope with the pandemic. Higher impacts were observed among younger and bisexual participants.

Anxiety was the most common symptom reported by the participants. This finding is higher than in a similar online survey conducted with US college students that reported 60% of anxiety (Gonzales et al., 2020), and is also higher than in a study carried out in Hong Kong with 857 LGBs which found 27.9% of anxiety disorder (Suen et al., 2020). These differences can be explained by the strong prejudice against the LGBT+ population in Brazil. Additionally, the country is experiencing significant political uncertainty and absence of public policies related to the COVID-19 pandemic, a factor that contributes to increasing vulnerability and anxiety symptoms in this population (Barros et al., 2020).

Considering that sexual and gender minorities present high rates of depressive and anxiety symptoms, these factors are potentiated in a crisis such as the COVID-19 pandemic. LGBT adults have higher prevalence of anxiety and depressive symptoms when compared to heterosexuals, and confinement has interrupted their social and sexual life, which restricted their access to a safe space, as well as it limited the social support they received from the community (Shilo & Mor, 2020; Suen et al., 2020). Some other factors like emotional symptoms, employment insecurity, income uncertainty, low access to the public health system, deferring gender-affirming treatments, and a significant need for family interaction, can also exert an impact on mental health (Barros et al., 2020; van der Miesen et al., 2020).

The significant level of loneliness reported in our study, mainly among men, was intensified by social isolation. Health problems associated with physical distancing or low socialization during the COVID-19 pandemic were associated with depression and anxiety in gender minorities (Sharma & Subramanyam, 2020; Suen et al., 2020). A previous study conducted with 770 LGBT Canadians showed that 61% feel lonely (Marziali et al., 2020). Loneliness in the LGBT community is a latent problem under conventional conditions (Marziali et al., 2020; van Tilburg et al., 2020). Normally, this loneliness is overcome by means of fast relationships, use of dating apps, and social interaction (Escobar-Viera et al., 2018), factors that have been largely affected by the social distancing imposed by the COVID-19 pandemic (Sharma & Subramanyam, 2020).

Our findings pointed to an important income reduction (36.9%) in the LGBT+ population, mainly in female individuals. These results were higher than those of a study carried out with 16,440 Brazilians, which pointed out that 21% of the population presented wage reductions (Bezerra et al., 2020; van der Miesen et al., 2020). In general, the LGBT population, especially black-skinned, female, and transgender individuals, are more likely to suffer economic impacts during the COVID-19 pandemic (Banerjee & Nair, 2020). Historically, this population suffers from unemployment and underemployment and often lacks the family support needed to deal with crises when compared to heterosexual and cisgender people (Coulter et al., 2019). Therefore, the socioeconomic factors can interfere with mental health and health care, impacting on depression symptoms, stress, substance abuse and suicide (Kline, 2020). Additionally, economic impacts can result in lack of access to adequate medical care, engagement in preventive health care measures, and needs during the pandemic (Ramírez et al., 2020; van der Miesen et al., 2020).

Increase in the stress level was a symptom reported by the majority of our sample (71%). This finding was similar to the Brazilian study in which 73% of the general population reported suffering some type of stress during the pandemic and greater than in a study carried out in Amsterdam, where 47% of the men who have sex with men (MSM) reported increased stress (Bezerra et al., 2020; van Bilsen et al., 2021). Stressful factors are enhanced by the changes imposed by the pandemic such as household adjustments, income reduction and more family life, despite the limited financial resources to maintain

social isolation, as well as the uncertainties generated by the pandemic (Gonzales et al., 2020). The stress experienced by the LGBT community includes behavioral and social factors faced by the entire population (Mattei et al., 2020; Mongelli et al., 2019). The persistence of the COVID-19 pandemic can cause chronicity of stressors generating severe harms and interfering with the mental well-being of this population (Rodriguez-Seijas et al., 2020). In addition, staying at home with family members can sometimes cause extreme stress for often not having the understood or accepted sexual or gender orientation. These differences can result in disagreements, physical and emotional violence and distress (Bezerra et al., 2020; Suen et al., 2020; Xue et al., 2020).

Changes in sleep patterns also represented a major impact among the respondents in our study (69%), mainly among lesbians and low-income participants. This finding is higher than in other studies that evaluated changes in sleep quality (Barros et al., 2020; Bezerra et al., 2020; Sanchez et al., 2020). Several studies point out that economic problems, uncertain future, anxiety, and stress can result in these sleep alterations (Cox & Olatunji, 2016; Kim & Dimsdale, 2007). A systematic review evidenced that sleep disorders are directly associated with cardiac, metabolic and immunological problems, as well as with other psychological and health conditions (Butler et al., 2020). With all the uncertainties experienced by the LGBT population during the COVID-19 pandemic, all related factors contribute to intensifying mental disorders, including changes in sleep quality.

We had some limitations that need to be better observed for the interpretation of the findings of this study. In the first place, even though we have representativeness in all regions of the country, there is disproportionality of frequencies by regions with a higher concentration of participants in the Brazilian South region. Secondly, online studies can limit access by low-income populations with no Internet access, or by those who do not know how to use a computer or smartphone. This factor can reflect a selection bias regarding social status and intellectual level, impacting on lesser representation of vulnerable populations. Finally, invitations made through contacts and contacts of contacts, convenience sample, can limit reaching different profiles representing samples with similar characteristics. Despite these limitations, we found important results that reinforce the vulnerability of the LGBT community.

5. Conclusion

Our study showed major impacts imposed by the quarantine on the Brazilian LGBT+ population. The COVID-19 pandemic and the actions taken during the first months exerted large impacts on sexual and gender minorities, mainly affecting mental health and interfering with economic aspects. The high prevalence of stress, anxiety, sleep disorders and loneliness in this population are the result of previous structural problems intensified during this period. Thus, the need for emotional support directed to minorities such as the LGBT population is evident, as well as public health policies that contemplate more vulnerable LGBT individuals. It is essential that the health services and professionals are prepared to attend to the demands of this population, being a source of support to face difficult situations such as the social isolation. Public health policies and the creation of strategies to reduce harm and ensure sexual and gender equity for minorities should be intensified during the COVID-19 pandemic.

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