Master of Public Health (MPH)

Territory matters: Exploring the impact of the COVID-19 pandemic on mental health and life perspectives in São Paulo, Brazil

Submitted by

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“O Brasil é nossa tarefa.”
Darcy Ribeiro

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Abbreviations

BRL	*Brazilian Real (R$)*
CFM	*PT-BR: Conselho Federal de Medicina; EN: Federal Council of Medicine*
CLT	*PT-BR: Consolidação das Leis do Trabalho; EN: Consolidation of Labor Laws*
COVID-19	*Infectious disease caused by SARS-CoV-2*
COVIDGI	*COVIDGI Project: VGI-sourced spatial behavioral data in the context of the COVID-19 pandemic*
CPI	*PT-BR: Comissão Parlamentar de Inquérito; EN: Parliamentary Commission of Inquiry*
DALY	*Disability-adjusted Life-years*
EUR	*Euro (€)*
GBD	*Global Burden of Disease study*
GDP	*Gross Domestic Product*
GDPR	*General Data Protection Regulation*
HDI	*Human Development Index*
IBGE	*PT-BR: Instituto Brasileiro de Geografia e Estatistica; EN: Brazilian Institute of Geography and Statistics*
LGBTQI+	*Acronym for "Lesbian, gay, bisexual, transgender, intersex, queer/questioning, asexual"*
LGPD	*PT-BR: Lei Geral de Proteção de Dados Pessoais; EN: General Personal Data Protection Law*
MAXQDA	*Computer-assisted qualitative data analysis software (CAQDAS)*
MERS	*Middle East Respiratory Syndrome*
OECD	*The Organisation for Economic Co-operation and Development*
PTSS	*Post-traumatic Stress Symptoms*
SARS	*Severe Acute Respiratory Syndrome*
SARS-CoV-1	*Severe Acute Respiratory Syndrome Coronavirus 1*
SARS-CoV-2	*Severe Acute Respiratory Syndrome Coronavirus 2*
SP	*São Paulo*
SP1	*São Paulo Region 1*
SP2	*São Paulo Region 2*
SUS	*PT-BR: Sistema Único de Saude; EN: Unified Health System*
UFRGS	*Federal University of Rio Grande do Sul*
UN	*United Nations*
US	*United States*
USD	*United States Dollars (US$)*
VGI	*Volunteered Geographic Information*
WHO	*World Health Organization*
WP1	*Work Package 1*
WP2	*Work Package 2*
WP3	*Work Package 3*
YLD	*Years Lived with Disability*

ABSTRACT

Background: The COVID-19 outbreak resulted in the largest pandemic since the Spanish Influenza. Brazil is on the top 10 countries in number of infections and deaths, and São Paulo is considered the “super-spreader city” with approximately 85% of transmissions in the country. The burden of the pandemic regarding mental health, work, education, leisure, and socio-economical aspects is unprecedented. **Methods:** Qualitative social-empirical approach trial via semi-deductive thematic analysis was performed. Transcriptions of focus groups applied to two populations (SP1 and SP2) with different socio-economic status from São Paulo, Brazil were analysed according to Braun and Clarke 2012 guidelines. **Results:** The COVID-19 pandemic highly affected all the participants in terms of mental health. However, the pandemic also served as an opportunity for the population at a higher socio-economic level. Reports of increased fear, anger, anxiety and stress were captured from both groups but with remarkable differences: while such reports obtained from group SP1 were frequently associated with isolation, loneliness, problems in their relationships, and problems related to remote work or educational activities, reports from group SP2 were mostly related to the restrictive measures, budgetary issues including the impacts on employability, working conditions and income. **Conclusion:** The consequences of the COVID-19 pandemic on the mental health of inhabitants from São Paulo were highly influenced by territorial and socio-economic aspects. More evidence at the community level is recommended to corroborate the presented findings in respect of the social and mental costs of the pandemic and to guide local policies to meet local and specific unmet needs.

Keywords: COVID-19 pandemic, mental health, life perspectives, São Paulo, Brazil.

ZUSAMMENFASSUNG

Hintergrund: Der Ausbruch von COVID-19 führte zur größten Pandemie seit der Spanischen Grippe. Brasilien gehört zu den zehn Ländern mit der höchsten Zahl an Infektionen und Todesfällen. São Paulo gilt mit etwa 85 % der gesamten Übertragungen im Land als "Super-Spreader-Stadt". Die Belastung durch die Pandemie in Bezug auf psychische Gesundheit, Arbeit, Bildung, Freizeit und sozioökonomische Aspekte sind beispiellos. **Methoden:** Es wurde ein qualitativer sozial empirischer Ansatz mittels semi-deduktiver thematischer Analyse angewandt. Transkriptionen von Fokusgruppen, die mit zwei Bevölkerungsgruppen (SP1 und SP2) mit unterschiedlichem sozioökonomischem Status aus São Paulo durchgeführt wurden, sind nach den Richtlinien von Braun und Clarke 2012 analysiert worden. **Ergebnisse:** Die COVID-19-Pandemie hatte bei allen Teilnehmern starke Auswirkungen auf die psychische Gesundheit. Allerdings diente die Pandemie auch als Gelegenheit für die Bevölkerung auf einem höheren sozioökonomischen Niveau. Beide Gruppen berichteten über zunehmende Angst, Wut, Besorgnis und Stress, jedoch mit bemerkenswerten Unterschieden: Während die Berichte der Gruppe SP1 häufig mit Isolation, Einsamkeit, Beziehungsproblemen und Problemen im Zusammenhang mit einer entfernten Arbeitsstelle oder Bildungsaktivitäten in Verbindung gebracht wurden, bezogen sich die Berichte der Gruppe SP2 hauptsächlich auf die restriktiven Maßnahmen, Haushaltsfragen einschließlich der Auswirkungen auf die Beschäftigungsfähigkeit, die Arbeitsbedingungen und das Einkommen. **Schlussfolgerung:** Die Auswirkungen der COVID-19-Pandemie auf die psychische Gesundheit der Einwohner von São Paulo wurden in hohem Maße durch geographische und sozioökonomische Aspekte beeinflusst. Es wird empfohlen, weitere Erkenntnisse auf Gemeindeebene zu gewinnen, um die vorgestellten Ergebnisse in Bezug auf die sozialen und psychischen Kosten der Pandemie zu untermauern und lokale Maßnahmen zur Deckung lokaler und spezifischer ungedeckter Bedürfnisse anzuleiten.

Schlüsselwörter: COVID-19-Pandemie, psychische Gesundheit, Lebensperspektiven, São Paulo, Brasilien.

RESUMO

Contexto: O novo coronavírus culminou na maior pandemia desde a Gripe Espanhola. O Brasil é top 10 em número de casos e número de mortes por COVID-19, e São Paulo é considerada a "cidade super-transmissora", com aproximadamente 85% dos casos de transmissão no país. As consequências da pandemia à saúde mental da população e seus impactos em trabalho, educação, lazer e aspectos socioeconômicos são sem precedentes. **Métodos:** Abordagem qualitativa socio-empírica através de análise temática exploratória semi-dedutiva foi realizada. Dados de grupo focal realizado em duas populações com diferentes níveis socioeconômicos (SP1 e SP2) foram avaliados. Códigos e mapa temático foram definidos sob as diretrizes de Braun e Clarke 2012. **Resultados:** A pandemia gerou grande impacto a saúde mental de todos os participantes. No entanto, a pandemia também trouxe oportunidades aos residentes de bairros com maior nível socioeconômico. Relatos de medo, raiva, ansiedade e estresse foram capturados em ambos os grupos, com diferenças entre si: enquanto tais relatos obtidos do grupo SP1 tiveram isolamento, solidão, problemas em relacionamentos, e problemas com o ambiente de trabalho ou educacional à distância, os relatos captados do grupo SP2 estavam majoritariamente ligados às medidas restritivas e a questões econômicas, incluindo empregabilidade, condições de trabalho e impactos em renda. **Conclusão:** O presente estudo conclui que os impactos da pandemia em saúde mental foram altamente influenciados por aspectos territoriais e socioeconômicos. Mais evidencias a nível distrital são recomendadas para corroborar com os resultados apresentados e para suportar políticas mitigatórias que considerem o contexto local.

Palavras-chave: Pandemia COVID-19, saúde mental, perspectivas de vida, São Paulo, Brasil.

1 INTRODUCTION

1.1 City of São Paulo

1.1.1 Overall characteristics

Located in south-eastern Brazil, São Paulo is the largest and most populous city in the country, the largest economic centre in South America, and one of the largest cities in the Americas. It is the capital of the state of São Paulo. The city is divided into eastern, western, northern, southern, and centre macro-regions. The population totalled 11,451,245 inhabitants in 2022 according to the last national census (IBGE 2023a). With 21.6 million inhabitants and a demographic density of 7,527.76 inhabitants per square kilometre (IBGE 2023a), São Paulo has the fourth biggest metropolitan area on the planet in terms of population, coming after Shanghai, Delhi, and Tokyo (United Nations 2018). Its metropolitan region is situated on a plateau 760 meters above sea level, is surrounded by rolling hills, and is located about 70 kilometres from the Atlantic Ocean. São Paulo has a subtropical climate, with hot, humid summers and mild, dry winters. The rainy season typically occurs during spring and summer, from October to March.

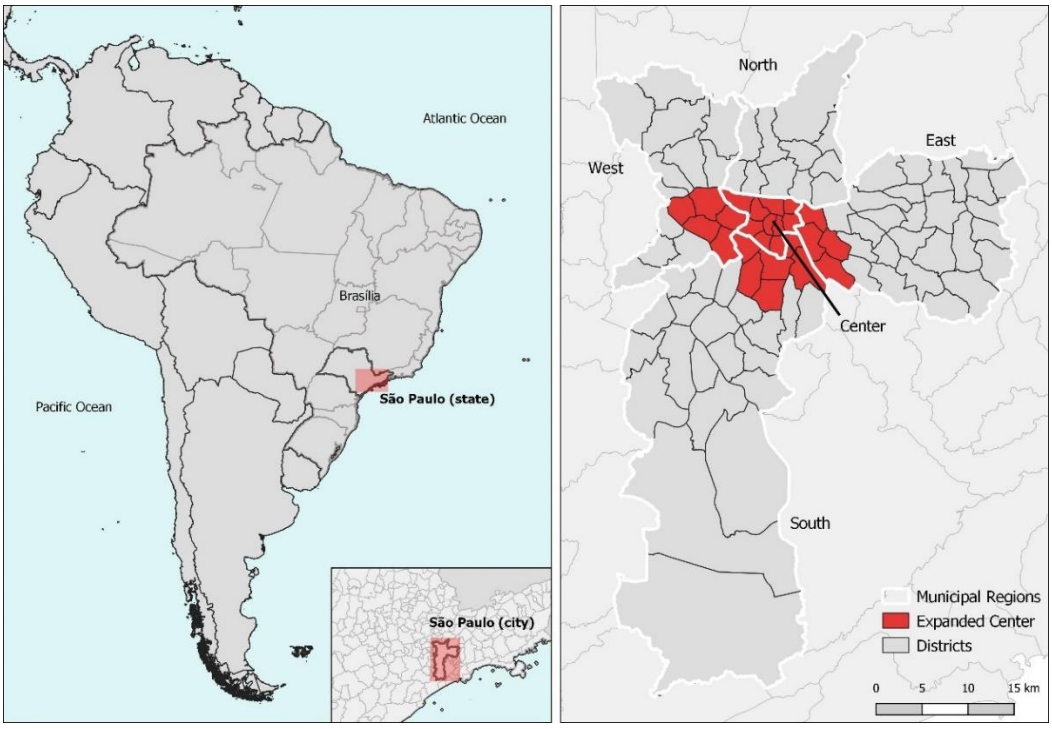

Figure 1. Map of Brazil and São Paulo. (Designed by author and Dr Alexandre Pereira Santos with data from Prefeitura de São Paulo 2023)

São Paulo is known for its vibrant culture, food, art, and nightlife, as well as its significant economic and political influence in Brazil. It is served by an extensive public transportation system, including buses, metro, trains, and two major airports, the São Paulo/Guarulhos International Airport, and the São Paulo-Congonhas Airport. Due to its global projection, São Paulo hosts several international sporting and cultural events, such as the Formula 1 Brazilian Grand Prix, the SP Fashion Week, the ATP Brasil Open, and the ComicCon Experience. It also has one of the biggest LGBTQIA+ Parades on the planet.

The macroeconomic indicators for São Paulo are impressive. The city is the hub of fashion and automotive industries in Brazil and hosts the São Paulo Stock Exchange and many multinational corporations, including banks, pharmaceutical and technology companies. São Paulo's gross domestic product (GDP) represents 10.3% of the national GDP (IBGE 2022a). It is the main hub that connects Brazil to global flows of information, resources, people, and goods (Sette Whitaker Ferreira 2003). The area named "expanded centre" includes São Paulo downtown and incorporates the neighbourhoods from the eastern, western, and southern zones of the city that are close to the centre. It concentrates people, general services (i.e., hospitals, gastronomy, transportation), labour opportunities, parks, and cultural activities.

São Paulo: *Territorial, Demographic and Socio-economic Characteristics*	
Land Area (2022)	1,521,202.00 km^2
Population (2022)	11,451,245
Population Density (2022)	7,527.76 km^2
Population with access to the sewage system (2010)	92.6%
Infant mortality (2020)	10.23 per 1000 live birth
Total GDP (2020)	EUR 142.68 billion
GDP per capita (2020)	EUR 12,459.36
HDI (2010)	0.805
Income GINI Index Per Capita (2010)	0.645

Table 1. City of São Paulo: Territorial, demographic and socioeconomic characteristics[1]. (Sources: Banco Central do Brasil 2023; DataSUS 2016; IBGE 2010; IBGE 2023a; IBGE 2023b; IPEA 2015; UNDP 2023)

[1] EUR 1.00 = BRL 5.248; Exchange Rate on 12 June 2023 (Banco Central do Brasil 2023).

Besides its importance in the global economic scene, São Paulo is also a symbol of inequality. As of 2018, approximately 2.6% of its population lived with less than 1.90 US dollars a day[2] (Cidades Sustentáveis 2020), and 24,344 people lived on the streets in 2019 (Prefeitura de São Paulo 2019; Segatto et al. 2022). The city's Gini index was 0.581 in 2018 (Segatto et al. 2022), which means a high level of income concentration. Differences in access to public services, job opportunities, and vulnerability may also differ by region (Feitosa et al. 2021). São Paulo's patterns of urban distribution and development contribute to a major concentration of resources, wealth, public capital (i.e., infrastructure, public spaces, institutions), and human development index (HDI) in the expanded city centre (Feitosa et al. 2021).

In terms of human development rates, extremely different realities can be found within the city's territory. The HDI in different districts of the São Paulo metropolitan area may vary from 0.479 in Vila Cesar, which is equivalent to the HDI of Sierra Leone (HDI = 0.477), to 0.965 in Vila Madalena, which is equivalent to the Human Development Index of Switzerland (HDI = 0.962) (IPEA 2015; UNDP 2022). In other words, while human development in the expanded centre is high, it can be significantly lower in the extreme peripheral areas of the city, especially on the outskirts of the eastern and southern zones.

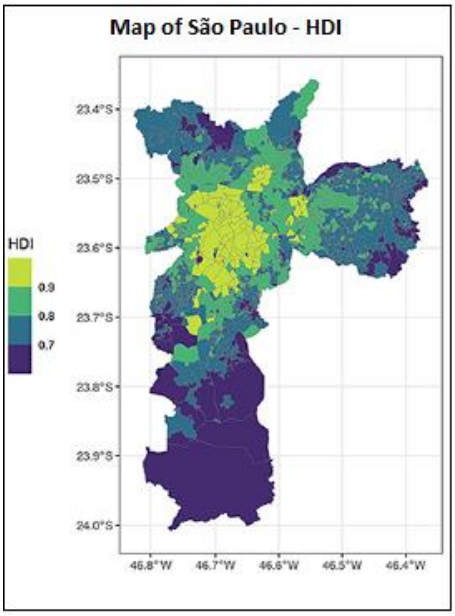

Figure 2. Map of São Paulo – HDI: This map illustrates the abysmal differences in terms of human development among different regions of the city. (Source: Segatto et al. 2022)

[2] USD 1.00 = EUR 0.93; Exchange Rate on 12 June 2023 (Banco Central do Brasil 2023).

Territorial differences in terms of infrastructure, mobility, and culture are also a reality in São Paulo. For instance, the proportion of recycled garbage in Vila Mariana, located in the expanded centre, is 42 times higher than in Itaim Paulista, a subdistrict located in the extreme eastern zone of the city (Mapa da Desigualdade 2020). Around 18% of São Paulo's general population lives one kilometre or less from a metro station. However, that number may vary according to the city zone: while 88% of the people in República, located in the expanded centre, lived one kilometre or less from a metro or railway station in 2017, residents from 29 other São Paulo subdistricts have no access to the public transportation system (Mapa da Desigualdade 2020). While it took inhabitants from Brás, in the expanded centre, 31.3 minutes on average to go to work in 2019, residents from Marsilac, located in the far south side of the city, spent on average 124.7 minutes to do the same every day (Mapa da Desigualdade 2020). Access to cultural activities is also affected by inequalities. With 110 museums, São Paulo holds the highest number of cultural facilities in Latin America (Cidade de São Paulo 2021a). Nevertheless, they are mainly concentrated in the expanded city centre and are only available in 15 of the city's 96 subdistricts (Mapa da Desigualdade 2020). The future and living conditions of a newborn baby will be defined by the various possibilities it will encounter throughout its life. As one can see, in São Paulo the territory is a determining factor.

1.1.2 History of São Paulo: A very brief overview

Pre-existing socio-economic challenges in São Paulo were indeed negatively affected by the COVID-19 pandemic, but they are not new. Historical factors have shaped São Paulo's development as a city and the development of the local society over time.

The region where São Paulo is located started being colonised in 1532, when Portuguese Jesuits arrived in the *Planalto Paulista* (Paulista highlands) coming from the coast and seeking indigenous populations to evangelised and use as workforce (Governo do Estado de São Paulo 2017; IBGE 2022b). A little hut named *Pateo do Collegio* was built to serve as the meeting point of Jesuits and a place for evangelisation (Cidade de São Paulo 2021b). On 25 January 1554, the first Catholic ceremony to commemorate the city's founding was celebrated in this location, which is regarded as São Paulo's ground zero (Cidade de São Paulo 2021b).

In its early years, subsistence agriculture and sugar cane plantations were the main economic drivers in the village of São Paulo (Paiva da Costa 2022). In addition to that, the inland territories of the region were explored through the *Bandeiras*, which were massive expeditions in the 18th century. They were organised by the colonisers, guided by the wisdom of the enslaved indigenous

peoples, and their aim was to find precious metals and dominate other populations (Lima 2011). These violent expeditions brought wealth and power to regional leaders. After that, the city's first important economic shift happened in the 19th century, when sugarcane was replaced by coffee plantations, and railways started to be implemented all over the region (Paiva da Costa 2022).

The social development of São Paulo is closely linked to the history of slavery and immigration in Brazil. Almost 5.5 million enslaved Africans arrived in the country from 1540 until the end of the 19th century (Princeton University 2023). This population served the local elite for almost 400 years, until 1888, when the *Lei Áurea* was signed and slavery was, in theory, abolished (Arquivo Nacional 2016). On the countryside, and in order to transform Brazil's industry, the workforce had to be replaced. Around 4.74 million European immigrants arrived in Brazil from 1884 to 1959, coming mainly from Italy, Portugal, Spain, Germany, and Japan (IBGE 2023c; Lesser 2013), mostly having the state of São Paulo as their destination, with the promise of land, wealth, and fair work conditions. At the same time, previously enslaved populations and their descendants were structurally marginalised and left without education, housing, work, and livelihood prospects.

Brazil is also characterised by significant regional disparities in terms of social, economic, and structural perspectives. In this sense, the city was a destination for national migrants looking for better living conditions since the beginning of the 20th century. While other Brazilian regions were facing stagnant economies and severe drought during this period, fast socio-economic development due to wealth accumulation from coffee trading and federal protective policies focused on the region brought prosperity to São Paulo and transformed the city at the national level (Ferrari 2005). This scenario led to a major wave of internal migration to São Paulo, starting in the 1930s and continuing especially in the 1950s (Ferrari 2005). These were decisive factors to model São Paulo's urban and socio-economic characteristics: a thriving yet uneven city in terms of wealth distribution, infrastructure, and opportunities.

1.2 COVID-19: The Pandemic of the Century

The COVID-19 infection is caused by the SARS-Cov-2 (severe acute respiratory syndrome-Coronavirus-2), a new Coronavirus (Benvenuto et al. 2020). The nasal cavity is the main route for SARS-CoV-2 viral particles and COVID-19 is mainly transmitted by inhaling SARS-CoV-2 virions through aerosol particles or droplets (Lu et al. 2020). About 90% of COVID-19 transmission occurs via the nasolacrimal duct or the nasal mucosa (Zhou et al. 2020). This allows SARS-CoV-2 to multiply in the upper respiratory epithelium tract and initiate the infectious stage of the disease (Bubbico et al. 2021).

Previous epidemics have been caused by the spread of other types of coronaviruses, such as the severe acute respiratory syndrome (SARS-Cov) in 2002 and the Middle Eastern respiratory syndrome (MERS) in 2012. Both caused respiratory syndromes and were reported in the last decades without pandemic status (Rabaan et al. 2020). But in December 2019, the Chinese city of Wuhan became the first place where the new viral respiratory syndrome was reported. Since then, the city has been considered the epicentre of the new pandemic, with the Huanan seafood market most likely being the first focal point of the new virus. The local authorities have implemented surveillance, epidemiological assessment, and preventative measures since the first days of January 2020 (Chen et al. 2020).

Still, the COVID-19 outbreak resulted in the largest pandemic since the Spanish Influenza in 1918 (Neiva et al. 2020). The World Health Organization (WHO) declared COVID-19 a Public Health Emergency of International Concern on 30 January 2020, and the disease outbreak was declared as pandemic by the authorities on 11 March 2020 (World Health Organization 2020). Social distancing and increased hygiene habits, including the use of hand sanitisers and face masks, were recommended by the agency as the main measures to reduce the spread of the virus (World Health Organization 2020). As a new disease, preventive and active treatments against COVID-19, such as vaccines and drugs, were not immediately available to the population. For this reason, restrictive measures were applied in response to the threat of the new disease. Physical distancing policies, mandatory use of masks in public spaces, lockdowns targeting non-essential services and educational institutions, and the isolation of sick individuals were implemented. Pre-existing healthcare facilities prioritised COVID-19 cases, especially in intensive care units, which were closed for elective procedures. This has led to major interference worldwide in the treatment and diagnosis of various diseases (Abd El Wahab et al. 2023; Frio et al. 2022; Ghali, A. et al. 2023; Momtaz et al. 2021; van Velthuysen et al. 2022), which poses a number of future challenges for public health. New temporary healthcare facilities focused on COVID-19 patients were built to increase the number of beds, in an attempt to alleviate the pressure caused by the pandemic on the system. Even so, disruption and collapse of healthcare services occurred and caused severe damage and losses in several countries, including Brazil (Deutsche Welle 2020; World Health Organization 2023c).

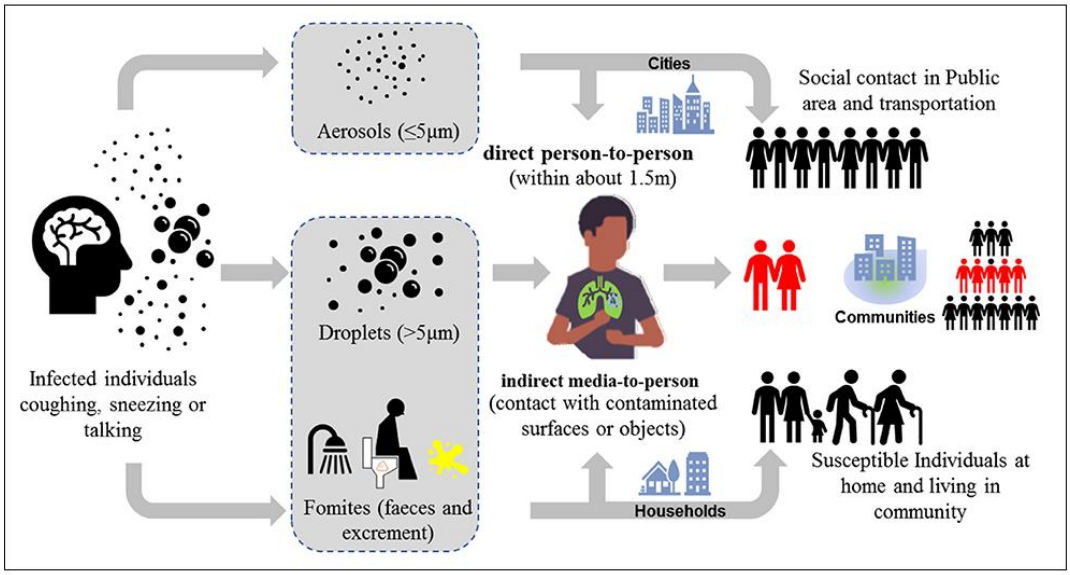

Figure 3. Pathways for COVID-19 transmission. (Source: Hu et al. 2021)

Decision-making focused on restrictive measures would ideally rely on strategies guided by the scientific community, modelling and opinion from experts (Berger et al. 2021). Nonetheless, this unprecedent process was constantly influenced by non-governmental actors, as well as political and societal components.

The pandemic also hit regions and countries differently. As a globalized society, coordinated response even at the local level was challenging and exposed governmental and non-governmental decision problems (Berger et al. 2021). COVID-19 also revealed the remarkable lack of pandemic preparedness in several aspects (OECD 2022a).

Furthermore, astronomic amounts of human, technical, and economic resources were deployed aiming to mitigate the impacts of the new virus. Several institutions projected that the COVID-19 pandemic has costed trillions of dollars so far (Cutler and Summers 2020; Reuters 2022; The Economist 2023). The main cost drivers are related to businesses, public services, individuals, and healthcare (Appleby 2022). The WHO estimates that fighting COVID-19 probably cost 500 times more than pandemic preventive measures (World Health Organization 2023a). Moreover, the social costs of COVID-19 are alarming and, sometimes, incalculable. The pandemic has exposed and may have eventually aggravated previous inequalities by age, gender, income, and geographic location (World Health Organization 2023c). In the course of time, COVID-19 brought to light not only the insincerity of the rhetoric of equity in global health in terms of combined efforts and investments between Global North and South, but also the fragility of the health security

agenda and the differences in terms of power globally, nationally, and locally (Shamasunder et al. 2020).

As of June 2023, approximately 42 months after the first reported case (World Health Organization 2023b), the COVID-19 pandemic had reached more than 231 countries (Worldometer 2022). According to the WHO, 767,750,853 cases and 6,941,095 deaths were confirmed in that same period (World Health Organization 2023b). The ranking of cases and deaths is led by the United States, with 103,436,829 confirmed cases, followed by China, India, France and Germany in the top five countries, and 1,127,152 deaths, followed by Brazil, India, Russia and Mexico. Europe leads the ranking of confirmed cases by region, with 276,585,359 confirmed cases by June 2023, followed by the Western Pacific and the Americas. Int terms of mortality, the Americas led the ranking by region in the same period with 2,955,160 confirmed deaths, followed by Europe and South-East Asia (World Health Organization 2023b). The real figures could be significantly affected by the different testing rates in each region and have the potential to be greatly underestimated (Nature 2022).

1.3 COVID-19 Pandemic impacts on Mental Health and Life Perspectives

Overall health, work, education, and leisure play a notably role in a population's life. All these situations were highly affected by the COVID-19 pandemic, in different ways and aspects. People suffered directly and indirectly from losses in various aspects due to the pandemic, such as health, work, education, wealth, leisure, income, and mobility (Santos et al., 2022: World Health Organization 2020).

This reality was no different in the case of Brazil. The pandemic dramatically impacted people's life opportunities and perspectives, such as the educational status of students (Barberia et al. 2021; Lichand et al. 2022), leisure and physical activity rate (Moura et al. 2022), and work conditions (Castro and Moreira 2021; Lima and Durán 2021). The mental health of the Brazilians was also highly impacted (Goularte et al. 2021). The most commonly reported symptoms were depression, anxiety, stress, anger, and sleep problems (Cândido and Gonçalves Júnior 2021; Lopes and Nihei 2021), which affected the most vulnerable populations to a greater extent, such as women, younger people, people with lower incomes, lower literacy levels, and a previous history of psychological disorders (Goularte et al. 2021).

1.3.1 Consequences of COVID-19 on Mental Health

The human race has experienced several traumatic events in the last 100 years: wars, disease, economic crises, social upheavals, revolutions. However, the COVID-19 pandemic is unquestionably the major global event of the century. Some might even remember with photographic precision the day when the Secretary-General of the WHO, Mr Tedros Adhanom, announced COVID-19 as a global pandemic on TV, or the footage of exhausted healthcare professionals, dressed as if in a science fiction film, working at intensive care unit rooms completely full of patients in critical condition.

People's lives were transformed. The dissemination of information was almost immediate, and since the very beginning of the pandemic, we have been constantly bombed through different media platforms (TV, radio, social media, smartphones, internet) with distressing images, interviews, news, and fake news about COVID-19. The fear of infection, death, or bankruptcy; the anxiety and expectations about the release of a new vaccine, about going back to normal; the sadness of being alone, of seeing empty streets; the tension rooted in political instabilities and the economic crisis. Those are all aspects of very uncertain times with an unpredictable future that arrived overnight. Routines were altered. This new situation brought with itself problems in terms of relationships, loneliness, the impacts of home-schooling, and a completely new and virtual environment of interaction.

According to the WHO, the prevalence of anxiety and depression, induced by the pandemic, increased by 25% globally (World Health Organization 2022). The agency promoted several "wake-up call" programmes to generate global awareness and to encourage countries to support their populations in terms of mental health. In addition to the natural impacts of the pandemic on the population's mental health, several programmes and services linked to the primary care of patients (i.e.: substance abuse cases, suicide prevention, neuro-psychiatric care) were also disrupted due to the COVID-19 crisis (World Health Organization 2022). Again, the most vulnerable populations were also the most affected: evidence from the last Global Burden of Disease study (GBD), with data from 204 countries and territories, shows that the most impacted populations in terms of mental health are young people and women (The Lancet 2021). Anxiety disorder and depression events were significantly higher in younger populations and women. The impact of traumatic events related to COVID-19 is also alarming. Recent literature shows the association of the COVID-19 pandemic with increased post-traumatic stress symptoms (PTSS) on COVID-19 survivors (Tu et al. 2021).

The general burden on the mental health of Brazilians due to the pandemic has been consistent with global trends. The country appears in the GBD in the top quartile in terms of change in the prevalence of major depressive disorder during the COVID-19 pandemic, which rose from 25.4% to 29.2% (The Lancet 2021). A recent local study also shows anxiety, depression, anger, and sleeping problems as the main psychological symptoms among Brazilians (Goularte et al. 2021). Additionally, the authors suggest a link between more vulnerable populations and the severity of the symptoms. Furthermore, a combination of the general impact of the pandemic on social activities, work, education, and finances may have served as triggers for exacerbated mental health disorders during the crisis.

1.3.2 Consequences of COVID-19 on Life Perspectives: Work, Leisure, Education, and Finances

As a major global event with an abysmal impact on people's lives, the pandemic severely affected the population in terms of work, leisure, education, and wealth. The workforce was badly shaken due to the global economic shutdown. According to the OECD, the COVID-19 pandemic contributed to the worst labour setback since the Great Depression of 1929 (OECD 2022b). The evidence observed in the socio-economic area has shown that the recommended physical distancing measures and lockdowns severely impacted the global economy and the labour markets, further exacerbating pre-existing socio-economic inequalities (Adams-Prassl et al. 2020; Khetan et al. 2022). The crisis also imposed a real shift in working conditions (i.e.: informal labour settings and precarious employment), absenteeism, and unemployment rates. Consequently, this situation increased poverty and mental pressure. Employees with informal or temporary contracts were more likely to lose their jobs (Adams-Prassl et al. 2020). Women and workers with lower levels of literacy were the most affected professionally (Adams-Prassl et al. 2020). Furthermore, workers with kids also had to deal with home-schooling. Companies that could rely on technology immediately implemented temporary home office policies (Castro and Moreira 2021). According to the literature, however, this resilience was closely related to the level of economic development (Brussevich et al. 2020), meaning that that was not the case for all workers. In countries like Brazil, the most vulnerable populations had fewer opportunities to work remotely (Castro and Moreira 2021).

There were also considerable setbacks in education. Following the recommendations of social distancing, the implementation of remote learning was unequal and led to unprecedented difficulties for students and docents. According to local literature, the impact on education and the success of home-schooling policies in the case of São Paulo relied on several factors, like level

of internet access, level of support from relatives, infrastructure, and home conditions (Lichand et al. 2022). In addition to that, violence, and psychological distress were additional drivers. The risk of school dropout drastically increased, and the performance and learning rate dropped dramatically when compared to the equivalent in-person model (Lichand et al. 2022). The pandemic could however also be seen as an opportunity for educators to adapt to the new concept of virtual teaching. The pre-existing boundaries between traditional educators and remote learning educators were reduced, as a disruptive and permanent change happened in the educational system in terms of pedagogical approach (Lockee 2021). Nevertheless, the overall post-COVID scenario for education tends to be negative ultimately. The World Bank projects the pandemic will cost this generation of students 17 trillion dollars in lifetime earnings due to learning losses (The World Bank 2021).

The impact on both work and education also had consequences for the way people spent their free time, given that leisure is closely linked to social activities and skills. Leisure can be defined as a set of activities performed usually during our free time, which can provide experiences, learning, well-being, emotions, social activities, opportunities, and cognition (Walker et al. 2019). The restrictive measures and sanitary recommendations forced people to not only work, and study remotely but also spend their free time and interact with friends or relatives from home. According to the literature, confinement shaped people's routines, lifestyles, and well-being, especially among younger populations (Lazcano et al. 2022). Additionally, it contributed to higher levels of sedentarism or insufficient levels of physical activity and, consequently, poorer physical conditions, lower perception of self-esteem, and stress (Cheval et al. 2021). Time spent on virtual environments through the use of electronic devices naturally increased in the general population. Conversely, this context cannot be seen as exclusively negative, defining a paradoxical state: people were also able to choose more freely when it came to leisure and the use of their time (Lazcano et al. 2022). In the case of Brazil, this dramatic scenario was intensified by severe political instability and a rampant economic crisis.

1.4 The COVID-19 Pandemic in Brazil

Brazil reported its first case on 26 February 2020, seven weeks after the first reported case in China (Neiva et al. 2020). With a population of 203,062,512 (IBGE 2023a), as of 12 June 2023 Brazil ranked sixth globally in terms of the total number of reported cases, with 37,601,257 cases. It also ranked second in total number of reported deaths, at 702,907 (World Health Organization 2023b).

Brazil's healthcare system is universal. The *Sistema Único de Saude* (SUS) offers free healthcare coverage to the entire Brazilian population. The system operates hierarchically and there are differences in public health actions across the three levels of governance: federal, state, and municipal (Schwartz et al. 2021). Several warning signs of a national healthcare services collapse due to COVID-19 were identified starting in February 2020, such as a lack of hospital beds (Almeida et al. 2021) and basic life-support supplies like oxygen (The Washington Post 2021) in hospitals across the country.

Brazil has been plagued by significant socio-economic inequalities and regional disparities for decades, and the COVID-19 pandemic worsened the country's overall socio-economic situation (Rocha et al. 2021). The trajectory of the epidemic in Brazil was modulated by the social aspects of the country and the consequences of the crisis particularly affected the most vulnerable states and cities (Rocha et al. 2021; Santos et al. 2022).

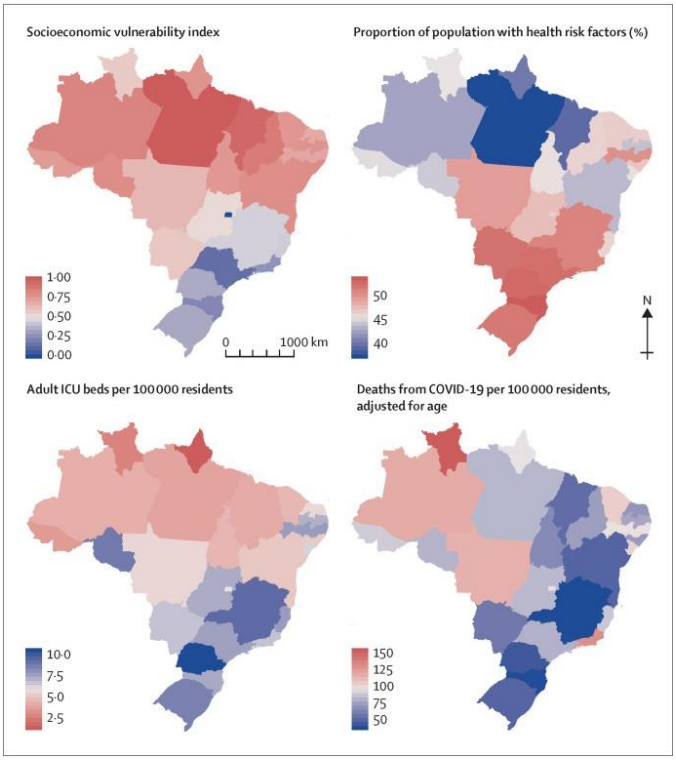

Figure 4. Territorial distribution of socio-economic vulnerabilities, COVID-19 risk factors, hospital capacity in terms of ICU beds per 100,000 residents, and COVID-19 death rates per 100,000 residents. (Source: Rocha et al. 2021)

The country also faced political instability and struggled with responding to the pandemic due to weak federal coordination and management, which led to devastating consequences (Barberia and Gómez 2020). The Brazilian government reinforced and worked towards their opposition to lockdowns and the use of face masks, going so far as to recommend alternative treatments –

known as *Kit Covid* – despite the lack of scientific evidence (Muniz et al. 2021), sometimes going against its own ministry of health and, contradictorily, with the support of the Brazilian Federal Council of Medicine (CFM). A country that used to have one of the most successful vaccination programmes on the planet found itself suddenly dealing with several setbacks regarding immunisation policies and information about vaccines. With national and state elections scheduled for October 2022 in an extremely polarised country, the pandemic was highly politicized, most significantly in COVID-19 news coverage and on social media.

1.5 The COVID-19 Pandemic in São Paulo

Brazil reported its first case of COVID-19 on 26 February 2020, in the city of São Paulo (Neiva et al. 2020). It was the first confirmed case in Latin America. As of 12 June 2023, São Paulo had accumulated 1,011,306 confirmed cases of COVID-19, representing 2.69% of the total number of confirmed cases in Brazil, as well as 40,452 confirmed deaths, meaning 5.75% of the total number of deaths in Brazil (Universidade de São Paulo 2023). Mathematical modelling shows that, seeing as São Paulo is a cosmopolitan city with a high level of people movement, the city became the "super-spreader city" in Brazil, with more than 85% of the cases spread nationally (Nicolelis et al. 2021). The high incidence of the disease in the city, combined with socio-economic challenges, affected the ability of physical self-isolation, the availability of healthcare facilities and resources (hospitals, vaccines, tests, hygiene materials), and contributed to unequal rates of infections and death by COVID-19 according to city area (Li et al. 2020; Travassos et al. 2020).

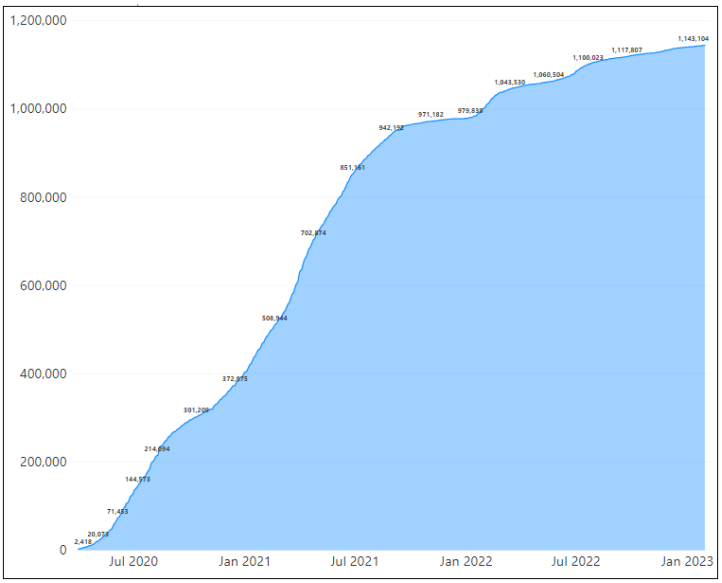

Figure 5. Cumulative Number of COVID-19 Cases in the city of São Paulo: Cumulative number of COVID-19 cases in the city of São Paulo from March 2020 to February 2023. (Source: Fundação Seade 2023)

The political situation in Brazil dictated the pace of the pandemic on several fronts. For budgetary purposes, the Brazilian federal government chose to declare a State of Calamity at the beginning of March 2020 (The Brazilian Report 2020). An emergency financial aid called "*Auxílio Brasil*", or Brazil Aid, was set up to support the poorest section of the Brazilian population during the pandemic (Brasil - Governo Federal 2023). This programme supported around 68 million people with 58% of the minimum wage in force at that time, which was 199.10 euros (BRL 1,045.00; Exchange Rate on 12 June 2023). Aiming to maintain jobs and provide economic relief to employees, the central government established the possibility of reducing working hours or suspending contracts for four months starting March 2020. Those actions reduced the economic pressure on companies and entrepreneurs in the short-term future but, on the other hand, allowed for several anti-*Consolidação das Leis do Trabalho* (CLT – Consolidation of Labour Laws in English) practices between employees and employers (Lima and Durán 2021), with an increase in informal jobs and precarious working conditions.

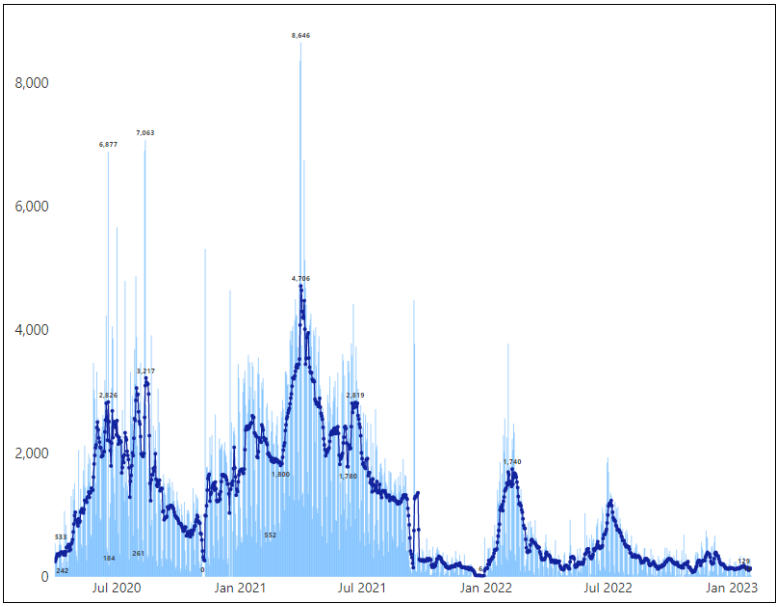

Figure 6. Cases of COVID-19 in the city of São Paulo: Daily number of COVID-19 cases in the city of São Paulo from March 2020 to February 2023. (Source: Fundação Seade 2023)

In the context of national strategies aimed at addressing and mitigating the impacts of the pandemic, and as previously introduced in the previous sub-chapter, both federal (located in Brasília, the capital) and local governments (at the state level) implemented non-coordinated measures. This can be attributed to political factors, given that national elections were scheduled for and took place in 2022. The Ministry of Health is responsible for the SUS (Unified Health System) and oversaw the management of the COVID-19 pandemic. Mr Jair Messias Bolsonaro,

who held the presidency of Brazil during this period, denied and downplayed the effects of COVID or the need for social distancing, promoting instead the use of non-scientifically approved medicines as COVID treatments. He also prioritised economic measures (Ferrante et al. 2021; The Lancet 2020a;). This attitude fuelled the flames of negationist propaganda and served as a source of misinformation and dissemination of fake news. Mr Bolsonaro appointed and replaced three health ministers in a span of two months. Brazil also witnessed the collapse of the healthcare system in the state of Amazonas, where patients died from asphyxiation due to a lack of oxygen support (The Washington Post 2021). Thousands of COVID-related deaths were reported daily in early 2021 (Ministério da Saúde 2023). A Parliamentary Commission of Inquiry (CPI in Portuguese) known as the '*CPI da Pandemia'* was established as a political manoeuvre to investigate the federal government's response to COVID (Senado Federal 2023). In it, several scandals were uncovered, such as instances of corruption and a deliberate delay in the procurement of vaccines.

Mr João Doria, a potential presidential candidate and governor of the state of São Paulo, gained national recognition for his opposition to the federal sphere's decisions regarding policies and restrictive measures (University of Konstanz 2020). Differently from Mr Bolsonaro, Mr Doria based his decisions regarding social distancing rules and the economic shutdown on scientific evidence and his own scientific committee's recommendations. São Paulo subsequently adopted the *Plano São Paulo*, or São Paulo plan (Governo do Estado de São Paulo 2023). As part of the São Paulo plan, quarantine, and social distancing measures for all the state regions were to be re-examined weekly in coordination with local mayors and representatives. The plan also included weekly television broadcasts of Mr Doria's speeches about plan updates. Its opposition to the federal government in terms of measures and strategies possibly created a sense of hope, but also a tense atmosphere which was certainly far from the ideal considering the ongoing sanitary crisis. It also served as a clear electoral platform.

The São Paulo plan encompassed several restrictive measures according to the disease's epidemiologic profile. In the most restrictive stages of the restrictive policy, remote work incentives were implemented, commerce and services were only available in takeaway or remote forms, and only professionals who had essential service-related jobs were allowed to work in person.

When it came to basic and secondary education, the state of São Paulo managed to maintain a certain degree of resilience that was above the national average. The local government provided a contrast to federal policies relating to basic and secondary education and adapting to the new distance-learning reality (Segatto et al. 2022). Public schools in Brazil are not only a place for

knowledge, training, and cultural activities, but also a place where children can receive an additional meal every day, provided and subsidised by the state. That extra meal decreases food insecurity and reduces the economic pressure placed on poorer families that have children. For this reason, closing schools in the state during the pandemic became a real dilemma and was a highly debated topic.

At the same time, several conflicting measures and decisions were being made by the central government. Several governors from other states – mostly those not politically aligned with the federal government – followed Mr Doria's lead. While this partial alliance, which acted as an opposition to the federal government, contributed to uncoordinated decision-making, it was also responsible for forming a strategic and unilateral partnership with Sinovac to bring the first COVID-19 vaccines to the country. In early 2021, a nurse from São Paulo became the first person within the national territory to get a dose of the COVID-19 vaccine with Mr Doria standing at her side, in a symbolical and nationally broadcasted act.

The city of São Paulo was the national epidemiological centre of the most serious sanitary event of the century, all in a highly volatile national situation. This master thesis aims to explore how this context and circumstances affected the mental health of the populations from two regions with different socio-economic levels within São Paulo, an extremely complex and unequal urban centre. Furthermore, we are interested in how mental health-related episodes reported by the same populations could have been triggered by the impacts of the pandemic on work, education, finances, and social activities.

2 RESEARCH QUESTION, IMPORTANCE AND APPLICABILITY

2.1 Research Question

How did the COVID-19 pandemic impact different populations from two regions of São Paulo with contrasting socio-economic levels – expanded centre and Vila Benfica –, in respect of mental health?

2.2 Importance and Applicability

The main objective of this master thesis is to generate evidence seeking to a) contribute to the development of the COVIDGI vulnerability model; b) contribute to local decision-making so as to pool human and economic resources proportionally to the different local needs; c) raise awareness about the importance of mental healthcare and management, especially after the COVID-19 pandemic; and d) reinforce the importance of qualitative research in health.

3 METHODS

3.1 Study Design

This research is part of the COVIDGI Project and aimed to explore the impacts of the COVID-19 pandemic on mental health in two different populations with different socio-economic levels. To achieve this objective, a qualitative social-empirical assessment was performed via semi-deductive thematic analysis to answer the presented research question. The dataset was obtained through two focus groups in two different regions of São Paulo. This thematic analysis – including the organisation of the data, analysis of transcripts, and generation of thematic map – was conducted based on the Braun and Clarke (2012) method (Braun and Clarke 2012).

3.2 COVIDGI Project

This master thesis was carried out in the context of the COVIDGI Project/Universität Hamburg (COVIDGI Project 2022), a research group focused on the development of open and authoritative spatial behavioural data with the aim of guiding and helping decision-making on the coronavirus and future pandemics. The COVIDGI project is divided into three main stages: the framework – Work Package 1 (WP1) –, which explores vulnerability frameworks through case studies in several Brazilian cities; the toolbox – Work Package 2 (WP2) –, which focuses on the development of a toolbox that includes authoritative, open, and volunteered geographic information-data (VGI) as its final deliverable; and the agent-based model – Work Package 3 (WP3) –, which focuses on individual behaviour through social simulation.

Exposure to coronavirus was frequently modelled as a direct interaction among infected people, whereas mortality may depend on pre-existing conditions, such as comorbidities and genetic characteristics (The Lancet 2020b). This approach considers neither socio-economic status nor territory, which can be included as other forms of vulnerability (Pellecchia et al. 2015). More recent vulnerability frameworks aim to fill this gap. Still, they rely solely on assumptions on the influence of socio-economic or environmental factors (Ahmad et al. 2020). That may lead to several uncertainties in decision-making processes. The COVIDGI Project model aims to reach interurban-scale results at the community level using different sources of data in order to facilitate decision-making guided by a robust vulnerability framework with sufficient and up-to-date information (COVIDGI Project 2022).

3.3 Recruitment Strategy

The selection of two different regions sought to enable observations among populations with different socio-economic backgrounds. For this purpose, an area with higher vulnerability factors – such as working-class areas and informal settlements with multiple needs – was included. In contrast, an area with a lower vulnerability level in terms of infra-structure and socio-economic status, with a middle-class population and complete infrastructure, was considered. Before the focus groups phase, which aimed to understand behavioural trends in the community setting, local stakeholders were interviewed to assess local needs. This stage was followed by the second phase of the project, which assessed the risk of COVID-19 at the district level through behaviour mapping and population risk in a medium scale. Local actors actively participated and contributed to the design and realisation of all stages of the project. The selection of samples in each part of the city consisted of creating two voluntary groups that were representative of the general population, with a balance between genders and socio-economic characteristics. The first group (SP1) was composed of participants from the expanded centre district, located in the city centre and with higher socio-economic indices. The second group (SP2) consisted of participants from Vila Benfica, a subdistrict of Guaianases, located in the eastern region of São Paulo and with lower socio-economic indices (*See table 2*).

Main characteristics of SP1 and SP2	**SP - Group 1**	**SP – Group 2**	**São Paulo**
Region	Expanded Centre	East	-
District	República	Guaianases	-
Participant's Subdistrict(s)	Sé, Lapa, Mooca, Pinheiros, V. Mariana	Vila Benfica	-
Total Population	372.238	110.361	11.253.503
Average Income per capita	EUR 173.28 – EUR 715.90	EUR 98.24	EUR 214.72
Average Salary Offer	EUR 751.52	EUR 468.32	EUR 877.16
Formal job offers rate / 10 hab.	22	0.99	4.8
HDI	0.869 - 0.942	0.770	0.805
Life Expectancy (Years)	68.2	60.7	68
Access to Public Transport (% Pop.)	88%	6.9%	18.1%
Infant Mortality / 100.000 live births	6.4	16.4	11.2

Table 2. Characteristics of Region SP1 and Region SP2: Region, district, subdistrict(s), population (IBGE 2010), average income per capita (Fundação Seade 2021), HDI (IBGE 2010; UNDP 2023), average salary offer per informal job, life expectancy, percentage of population with access to public transport, and infant mortality per 100.000 live births (Mapa da Desigualdade 2020).

Potential participants were contacted by phone (middle-income group) or by local partners (i.e., TETO Brasil), and/or community leaders (low-income group) contacted them. In preparation for

the focus group stage, individual interviews were conducted. COVIDGI staff asked participants about important life events, mobility changes, and changes in mental and physical health during the last years, including the two years of the pandemic (2018-2021). Selected participants were informed and signed a written consent term *(See Appendix A)* prior to the enrollment.

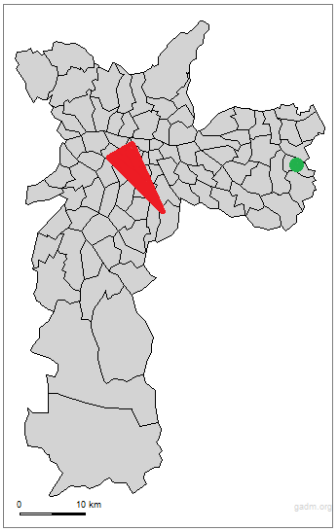

Figure 7. Location of the two focus groups conducted in the municipal area of São Paulo: The location of the low-income focus group is illustrated in green (Benfica) and the location of the middle-income focus group in light red (part of the expanded centre). The surface of the light red polygon is larger because it covers the residential areas of the participants in the middle-income group, who live at a greater distance from each other than the participants from the low-income group do. **(**Map produced by the author via GADM 2022)

3.4 Data Collection

The main objective of the COVIDGI project's fieldwork was to explore how different populations were affected in terms of mobility patterns, considering spatial, social, and temporal dimensions. Conversely, several important insights regarding impacts on mental health and life perspectives were also extracted from the volunteers during the focus groups activities. The focus groups were professionally moderated, and the discussions were semi-structured. Findings from the individual interviews were considered when designing the semi-structured questions. Based on the research interest in designing the project, topics related to vulnerability and risk of a COVID-19 infection were covered. Using the concept of vulnerability, three subthemes emerged: exposure, resilience, and resistance (Pelling 2003). Twenty volunteers participated in the focus groups in March 2022 in two regions: República (expanded city centre) and Vila Benfica (extreme east zone).

To maintain the confidentiality of the participants and mediators, their original names have been concealed. *Ines, Frida, Julia, Anna, Barbara, Manuel, Henry, Fernanda,* and *Gabriel* were the nicknames attributed to the participants from Group SP1, while *Lilith, Micaela, Andy, Renata, Jim,*

Carlo, Lauren, Richele, Vivian, Lara, and *Goliath* were the nicknames attributed to the participants from Group SP2. The focus groups originally aimed to provide data describing the impacts of the COVID-19 pandemic in terms of mobility patterns and behaviour and followed a semi-structured open-ended interview guided by the macro project's research questions. Questions were organised according to the following interview structure:

Introduction

1. General introduction to the research project, including the context of the pandemic in Brazil, its different phases, and the questions regarding mobility decision on which the product focuses.
2. Did someone get COVID-19? Who got vaccinated?
3. What are your current mobility practices (daily routine)?
4. How has the pandemic affected your physical and mental health?
5. Have you perceived public support during the pandemic? What kind? Why? Why not?
6. Did the quality of health services change during the pandemic? Did specialized healthcare changed? How?

Questions related to general behaviour

1. How have you dealt with social events during the pandemic? (e.g., visiting friends, relatives, parties, leisure in general)
2. What factors influenced your exposure to the virus, whether it means more or less exposure (e.g., WhatsApp groups, social media, traditional media - radio, tv, official government statements) (vaccination, time at home, children) (BEFORE) (DURING)
3. If you experienced an event that radically changed the way you acted during the pandemic, what was it? How did you learn about it and how did you decide to change your behaviour? (i.e., co-workers, family members, neighbours, acquaintances)
4. Do you think community strategies helped you deal with the pandemic? How? Keep in mind to understand the frontiers - where public services end and where community support enters.

Questions related to mobility habits

1. Do the participants leave the house as often as they did before COVID? How much has the pandemic affected their decision?
2. Did the transportation that you used most before the pandemic change during the pandemic? Why?
3. Has the pandemic reduced or increased your job opportunities? (Leaving your job, starting a new company, etc.)
4. How did your work and work environment influence the level of exposure you had to the virus? Did you feel exposed because of it?
5. How did the pandemic change your shopping behaviour? (e.g., frequency, types of stores, location, online)
6. How much did your change your behaviour to perform other essential activities outside the home during the pandemic?

3.5 Transcription Analysis

The focus groups were performed and recorded in Brazilian Portuguese. The full conversations will be manually transcribed to Microsoft Word (Microsoft 365 - Version 2209) and translated to English by a group of native speakers of Brazilian Portuguese and fluent in English. An additional collaborator and native speaker of Brazilian Portuguese double-checked both the transcriptions and the translation to mitigate the impacts of any probable bias or idiomatic errors. The names of the participants were concealed in the final translation and codenames were assigned to protect the identity of the volunteers. The gender related to the codename was not necessarily related to the gender identity of each participant. Each paragraph was assigned a number in ascending order to facilitate the data analysis. The final analysis of the dataset was performed via MAXQDA (VERBI Software 2021).

3.6 Thematic Analysis: Codes and Thematic Map

3.6.1 Generation of Initial Codes

Several variables were considered to generate the initial codes in a semi-deductive approach: review of current evidence, field experience, experience with the data, and previous studies generated by the COVIDGI project, including its tools and framework based on territory and vulnerability. Pre-established codes were defined on the fields of *mental health* and *life perspectives*. Sub-codes, as themes, were generated according to the dataset assessment, and a codebook was obtained (*See Appendix B, Table 8*). This process was divided into six main stages, according to Braun and Clarke's 2012 guidelines: 1. Becoming familiar with the data; 2. Generating codes; 3. Searching for themes linked to the research questions in order to create a thematic map; 4. Reviewing potential themes related to the research questions; 5. Defining and naming themes related to the research questions; and 6. Report production (Braun and Clarke 2012).

In the presented analysis, one analyst oversaw the data. The dataset was explored several times in text and audio so that the analyst would remain familiar with the data. Mental health (Code A - Mental Health) and life perspectives (Code B - Life Perspectives) were the main drivers of choice among several other potential topics such as mobility, access to healthcare (tests, vaccines, facilities, institutions), and source of information during the pandemic. Both mental health and life perspectives were established due to their frequency and relevance in the given dataset.

A third code of assessment was also determined (Code C - Assessment) to categorise the impacts of the pandemic on mental health or life perspectives (C1 - Negative; C2 - Neutral; C3 - Positive). Impacts of the pandemic that negatively affected or influenced a given volunteer were coded as C1; no impacts or no changes in a given theme or sub-theme from codes A and B were coded as C2; impacts that positively affected or influenced a given volunteer were coded as C3. The positiveness, negativeness, or neutrality of a given situation was influenced by the interpretation of the data analyst.

3.6.2 Thematic Map

As well as usually being a combination of description and interpretation, this coding process was carried out through MAXQDA using both mental health and life perspectives at the semantic level of meaning, not being interpretative or going beyond the participants' meanings.

Themes were created to sub-categorise codes A, B, and C in order to arrive at a final thematic map (*See table 2*). The categorisation of the data into themes was employed to capture important information about sub-topics that emerged from within the dataset with relevance and frequency. The analyst reviewed the coded dataset to identify regions of overlap and similarities among codes. After creating codes and themes, a round of themes revision was performed as a quality check and to confirm that everything related to both codes and themes was captured on the dataset. This process was followed by the definition and denomination of themes. Code A (*Mental Health*) was divided into A1 - Fear, A2 - Anxiety, A3 - Sleeping Problems, A4 - Emotional and/or Psychological Distress, A5 - Stress, A6 - Anger, and A7 – Mental Health Support. Code *B* (*Life Perspectives*) was divided into B1 - Work (sub-themes: B1.1 - Work Conditions, B1.2 - Employability), B2 - Education (sub-themes: B2.1 - Educational Environment, B2.2 - Changes in Educational Status), B3 - Leisure/Social Life (sub-themes: B3.1 - Fitness/Exercising, B3.2 - Cultural Activities, B3.3 - Social Activities/Relationships, B3.4 - Hobbies), and B4 - Financial Status (sub-themes: B4.1 - Income, B4.2 - Purchase Power/Consuming. Code *C* (*Assessment*) was divided into C1 - Positive, C2 - Neutral, and C3 - Negative (*See Appendix C, Table 9*).

3.6.3 Themes: A - Mental Health

Themes related to code A - Mental Health are listed below.

Fear (A1)

Reports of general fear were captured as A1 - Fear. Synonyms of fear such as afraid, panic, terror, worry, and fright, were also categorised under theme A1.

Anxiety (A2)

Explicit reports of anxiety were captured as A2 - Anxiety. Eating disorder episodes were categorised under A2, seeing as a probable connection with anxiety is supported by the literature (Rosenbaum and White 2013). Idiomatic variations such as anxious were also categorised under theme A2.

Sleeping Problems (A3)

Sleeping problems were captured as A3 - Sleeping Problems. Any kind of report of episodes of insufficient or excessive sleep were categorised under theme A3.

Emotional and/or Psychological Distress (A4)

Reports of broader episodes of psychological or emotional distress were captured as A4. Participants' reports describing episodes of emotional hardship, episodes of crying without clear demonstrations of sadness or specific reasons, and other generic descriptions of mental distress were categorised as A4.

Stress (A5)

Clear experiences of stressful situations were captured as A5 - Stress. The literal expression of the words stress, stressful, tension or tensity, and pressure were also categorised as A5.

Anger (A6)

Reports of anger were captured as A6 - Anger. Synonyms such as irritation, irritability, indignation, or reports of situations in which participants were clearly angry or irritated were categorised as A6.

Mental Health Support (A7)

Reports of psychological support obtained to mitigate the impacts of the pandemic were captured as A7 – Mental Health Support. Mental health support within a medical context, through psychiatric or psychologic attention, or within an occupational perspective, through general mental health support obtained from employers, was categorised under as A7.

3.6.4 Themes and Sub-Themes: B - Life Perspectives

Themes and sub-themes within Code B - Life Perspectives are listed below.

Work (B1)

Impacts on work were captured as B1 - Work. Reports of negative, neutral, or positive impacts of the pandemic on labour were categorised as B1. This theme was clustered in two main sub-themes: B1.1 - Work Conditions and B1.2 - Employability.

- ***Work Conditions (B1.1)***

Reports of impacts on working conditions were captured as B1.1 - Work Conditions. Reports of better work conditions after the pandemic (i.e.: implementation of adequate home-office policies, improved working environment), neutral impacts on work conditions after the pandemic (i.e.: no improvements nor deterioration of working conditions), and negative impacts on work conditions after the pandemic (i.e.: signs of labour difficulties, deterioration of working conditions, poor home-office policies) were categorised as B1.1.

- ***Employability (B.1.2)***

Reports of impacts on employability were captured as B1.2 - Employability. Accounts of employment opportunities (i.e.: job promotion, being hired as a formal worker, job offers within field of study, networking opportunities), neutral impacts on employability after the pandemic, or negative impacts on employability after the pandemic (i.e.: unemployment, downgrading of job status, informal jobs) were categorised as B1.2.

Education (B2)

Impacts on education were captured as B2 - Education. Reports of negative, neutral, or positive impacts of the pandemic on education were framed as B2. This theme was clustered in two main sub-themes: B2.1 - Educational Environment and B2.2 - Educational Status.

- ***Educational Environment (B2.1)***

Reports of impacts on educational environments were captured as B2.1 - Educational Environment. Accounts of improvement in the educational environment after the pandemic (i.e.: opportunities due to the new online lecture environment, improvements in the pedagogical perspective or in the learning process), neutral impacts on the educational environment after the pandemic, or negative impacts on the educational environment after the pandemic (i.e.: hardship due to the new online lecture environment, deterioration in the pedagogical perspective or in the learning process) were categorised as B2.1.

- ***Educational Status (B2.2)***

Reports of impacts on educational status were captured as B2.2 - Educational Status. Reports of improvement in educational status after the pandemic (i.e.: starting a new programme or course), neutral impacts on educational status after the pandemic, or negative impacts on educational status after the pandemic (i.e.: withdrawing from an educational programme or course) were categorised as B2.2.

Leisure/Social Life (B3)

Captures of impacts on leisure, free time, and social life, including social relationships, were captured as B3 - Leisure/Social Life. This theme was divided into four main sub-themes: B3.1 - Fitness/Exercising, B3.2 - Cultural Activities, B3.3 - Social Activities/Relationships, and B3.4 - Hobbies.

- ***Fitness/Exercising (B3.1)***

Reports of impacts on fitness or exercising were captured as B3.1 - Fitness/Exercising. Accounts of improvement in fitness or exercising after the pandemic (i.e.: starting a new physical activity, signs of improved physical health), captures of neutral impacts on fitness or exercising (i.e.: no interference of the pandemic in fitness or exercising), or negative impacts on fitness or exercising after the pandemic (i.e.: interruption of physical activities, signs of deterioration in physical health) were categorised as B3.1.

- ***Cultural Activities (B3.2)***

Reports of impacts on general cultural activities were captured as B3.2 - Cultural Activities. Reports of improvement in cultural life after the pandemic (i.e.: starting cultural activities that were unusual before the pandemic, increased consumption of cultural or artistic activities due to the pandemic), neutral impacts on cultural life (i.e.: no interference in cultural activities), or negative impacts on cultural activities after the pandemic (i.e.: decrease or stopped consumption of cultural activities after the pandemic) were categorised as B3.2.

- ***Social Activities/Relationships (B3.3)***

Reports of impacts on social activities or relationships were captured as B3.3 - Social Activities/Relationships. Reports of improvement in terms of social activities or relationships after the pandemic (i.e.: improved connection of all kinds with family and friends due to the restrictive measures, starting a new relationship, increased frequency of meetings or social activities), neutral impacts on social activities or relationships after the pandemic (i.e.: no impacts or no

compliance to the restrictive measures), or negative impacts in respect of social activities or relationships (i.e.: deterioration in the connection of all kinds with family and friends due to the restrictive measures, terminating a current relationship, decreasing frequency of meetings or social activities) were categorised as B3.3.

- ***Hobbies (B3.4)***

Reports of impacts on hobbies were captured as B3.4 - Hobbies. Accounts of positive impacts on hobbies after the pandemic (i.e.: developing a new hobby, positive impacts on old hobbies), neutral impacts on hobbies after the pandemic (i.e.: no impacts on old hobbies, no development of new hobbies), or negative impacts on hobbies after the pandemic (i.e.: ending or interrupting an old hobby) were categorised as B3.4.

Financial Status (B4)

Reports of general impacts on budget after the pandemic were captured as B4 - Financial Status. This theme was divided into two main sub-themes: B4.1 - Income, and B4.2 - Purchase Power/Consuming.

- ***Income (B4.1)***

Reports of impacts on income were captured as B4.1 - Income. Accounts of positive impacts on income after the pandemic (i.e.: increased family income), neutral impacts on income after the pandemic (i.e.: no changes in family income), or negative impacts on income after the pandemic (i.e.: decreased family income) were categorised as B4.1.

- ***Purchase Power/Consuming (B4.2)***

The impacts on purchasing power and consumption were captured as B4.2 - Purchase Power/Consuming. Reports of positive impacts on purchase power and/or consumption after the pandemic (i.e.: increased spending, signs of budget increase or saving, increased purchasing power), neutral impacts on purchasing power and/or consumption after the pandemic (i.e.: same spending behaviour, no changes in purchase power or expenses), or negative impacts on purchasing power and/or consumption after the pandemic (i.e.: decreased spending, signs of budget reduction, reduced purchasing power) were categorised as B4.2.

3.6.5 Themes: C - Assessment

Code *C - Assessment* was created with the purposes of assessing themes and sub-themes from code *B – Life Perspectives* to categorise the impacts of the pandemic on work, social activities

and relationships, education, and finances into *Positive, Neutral* and *Negative* in a literal and semantic way. It encompasses not only words that indicate positivity, neutrality, or negativity (i.e.: good, bad, worse, better, same, equal, improved, increase, decrease, loss, win, gain, etc.), but also a semantic interpretation of the participants' insights. In the case of this analysis, each assessment mark was exclusively assigned by the analyst. The interpretation of neutrality, posititivty, or negativity may vary depending on the observer's background and experience. Therefore, different interpretations from third parties may occur.

Positive (C1)

The assessment of the reports was categorised as C1 - Positive in a clear case of improvement in each aspect due to the pandemic (i.e.: improvement of physical health, more access to culture, better working conditions, increased purchasing power or spending), as well as in the case of opportunities that were presented to the participants because of COVID (i.e.: new job offer, opportunity to study abroad). The interpretation of the context and clear semantic signs as positive was marked as C1 - Positive.

Neutral (C2)

The assessment of the reports was categorised as *C2 - Neutral* in a clear case of neutrality in each aspect due to the pandemic (i.e.: same job status, same income, nothing changed on education, etc.). Neutrality attributed to the impacts on social activities, work, education, and finances represents no changes occurred on that parameter due to COVID. For instance, reports of no changes in meetings with family or friends, no changes in social life or attendance to social events (i.e.: parties, bars, meeting with relatives), no changes in relationships (i.e.: keeping the same marriage status, reviewing friendships or relationships but not changing their status, etc.), no changes in work policies or employment (i.e.: no impacts on working relations, working environment, job status), no changes in education (i.e.: same classroom atmosphere, no difference in learning, no impacts on the relationship with classmates, no school dropout, etc.), and no changes in finances (i.e.: same income, same purchase power, same consumption rate) will be considered as neutral.

Impacts with unclear rate of positiveness, neutrality, or negativeness may also be categorised as neutral. Situations where positiveness, neutrality, or negativeness are not clear, without an evident sign of improvement or deterioration, may be considered as neutral as well.

Vaccination may interfere in such situations and transform negative impacts into neutral. In this case, a given situation that is a clear return to old habits or conditions in terms of social activities,

relationships, work, education, and finances due to vaccination will be considered as neutral (i.e.: returning to the office, attending parties or social events, returning to an old job, travelling, or participating in cultural activities again, etc.).

Negative (C3)

The assessment of the reports was categorised as *C3 - Negative* in clear cases of deterioration in each aspect due to the pandemic (i.e.: worsened physical health, less access to culture, worse working conditions, decreased purchasing power or consumption), as well as in the case of challenges participants faced because of COVID (i.e.: losing a job, school dropouts). The interpretation of the context and clear semantic signs as negative impacts was marked as *C3 - Negative*.

3.7 Data Analysis

The data was organised and codes, themes and sub-themes were developed following the *APA Handbook of Research Methods in Psychology, Volume 2* guidelines by Braun and Clarke (Braun and Clarke 2012). After full immersion in the data by the analyst, organising the data set, reading and rereading the final textual product, and the development of codes, themes, and sub-themes, two official rounds of data analysis were carried out by the analyst using MAXQDA. The two official rounds of data analysis were carried out ten days apart. The result of this master's thesis is the outcome of the second official round of data analysis. One pilot round of analysis was performed by the analyst 15 days before the first official round, with the aim of acclimatising to the data analysis software and setting up the codes, themes, and sub-themes within the system. The full transcripts and the result of the last official round of analysis are available eletronically.

3.8 Ethical Considerations

This master's thesis fieldwork is backed by the principles of ethics in research, as defined by the Bylaws for Safeguarding Good Scientific Practice and Avoiding Scientific Misconduct at Universität Hamburg (Universität Hamburg, 2014) and the Guidelines for Safeguarding Good Research Practice. The resolutions 466/2012 (Conselho Nacional de Saúde 2012) and 510/2016 (Conselho Nacional de Saúde 2016) made by the Ethics in Research Committee of the Federal University of Rio Grande do Sul in Brazil (CEP/UFRGS) (Universidade Federal do Rio Grande do Sul 2023) and the Code of Conduct (DFG, 2019) in Germany approved this fieldwork plan on 27 January 2022 (Deutsche Forschungsgemeinschaft e.V. 2019). It is registered on Plataforma Brasil under CAAE 54068521.0.0000.5347 (Conselho Nacional de Saúde 2023).

Ethics in research is guided by the principles of respect, beneficence, and justice. The autonomy of the participants is guaranteed and underpinned by voluntary consent. All the information about this research and the use of the data were made clear, with no coercion of any kind. All volunteers had the right to withdraw from this research unilaterally and voluntarily at any stage of this study. Individual and community harm to volunteers has been prevented. The participants took part in the focus groups exclusively with their opinions and were not subject to any judgment. This research guarantees the confidentiality of information and the anonymity of the participants by adopting individual pseudonyms, eliminating any sensitive or personal information, and avoiding the tracking of participants. These measures respect the European GDPR and the Brazilian LGPD. Participants will be informed in advance of all data use, including the analysis and publication of results.

4 RESULTS

The results of the data analysis follow in this chapter qualitative form, represented by the description of the codebooks, frequency of codes, themes and sub-themes, portrait of results *(See Appendix D, Figures 8 and 9)*, depictions of the qualitative results, and frequency of assessment marks. The qualitative data was reported through the transcripts obtained from the focus groups.

4.1 Mental Health

In terms of mental health, the most frequent theme in both SP1 and SP2 was fear. The least frequent theme for SP1 was sleeping problems, and the least frequent theme in SP2 was anger. More reports of episodes of stress or anger related to work or education were captured in the SP1 group. On the other hand, the mental health reports in the SP2 group were usually related to the economic situation. A remarkable difference in psychological support was observed between the two groups. While several remarks about support from private therapists, employers, or educational institutions were observed in the SP1 group, no reports of psychological support of any kind appeared in the SP2 group. The *table 3* highlights the main findings according to each group.

Group SP1	*Group SP2*
Fear	
I panicked a lot in closed environments, supermarkets, these things..."	*"I had a panic crisis and everything, and I was alone"*
"...when I'm inside the subway, the bus, and it's crowded, I feel claustrophobic."	*"I was afraid of my husband catching it [COVID], because he brings the food 'into the house'"*
Anxiety	
"It [the pandemic] gave me anxiety, it gave me a lot of anxiety"	*"I had an anxiety crisis and gained weight, some extra fat and some less fat... I reached 110kg."*
Sleeping Problems	
-	*"I couldn't sleep"*
	"I used to sleep all day long"
Emotional and/or Psychological Distress	
"…because during the pandemic the motivation was no longer there, I was at a point where I thought 'I'm going to quit college because there is no way, anyway.'"	*"Yes, for various reasons, both because of Covid and because of the [economic] situation there, it was neither physically nor mentally pleasant and I was already a little disturbed in my mind."*
"There were people crying in the meeting [at the university]."	*"I had a very hard time."*
Stress	
"I felt a lot of stress from spending a lot of time in front of screens."	*"I remember that I was feeling bad at the general hospital here in Guaianases, a doctor said that my problem was pressure and stress"*
Anger	
"I fought with a woman who was two metres away, she didn't want to get close, for several things."	*"I got nervous [nervous as a report of anger when someone appeared with symptoms of COVID]"*
Psychological Support	
"Yes, she helped me have a conversation with the therapist as well."	-
"Just one last thing, we also had mental health support for our employees during this last period."	

Table 3. Summary of Results on Mental Health.

4.1.1 Fear

Fear was the most frequent issue related to mental health for both groups. Insights were considered fear when volunteers expressed overall fear of the direct and indirect consequences of COVID-19 on their lives. Ten reports of fear were captured in the SP1 group, and another 12 reports were captured in the SP2 group. Volunteers in both groups mostly reported fear of being infected. Reports of discomfort in crowded indoor spaces were frequent. A report on the fear of physical interaction:

> In the beginning, to go to the supermarket, this kind of thing, I was also very careful, even when I went to the market at a time that it theoretically would have less people, wearing a mask, but people had a lot of difficulty, you are in line and the person sticks to you, or you go to get the butter and the person comes right in front of you, so I panicked a lot in closed environments, supermarkets, these things... (SP1 - Paragraph 232)

Reports of claustrophobia – fear of being in enclosed spaces – related to the fear of a COVID-19 infection when using public transport were also captured:

> And when I'm inside the subway, the bus, and it's crowded, I feel claustrophobic. (SP1 – Paragraph 495)

Volunteers with comorbidities reported fear of contracting COVID-19 due to their condition:

> Yes, I have bronchitis, I have chronic bronchitis, so when you said isolation, I wouldn't even have left home because I have chronic bronchitis so I would be more... it attacks faster, I would think, no, I have a weak lung, I have bronchitis, I would die. It's better to stay at home, I was isolated indeed. (SP2 – Paragraph 472)

General reports of panic attacks and general fear were frequent:

> I had a panic crisis and everything, and I was alone. (SP2 – Paragraph 1072)

One volunteer from the SP2 group reported that she feared her husband would be infected not only for fear of COVID, but also for financial reasons:

> I wasn't afraid, because for me it was not fear, I was afraid of my husband catching it, because he brings the food into the house and if he caught it, for me it would already be a thud [impact], because how am I going to start all over again? but thank God it didn't work out [him getting infected]. (SP2 – Paragraph 876)

4.1.2 Anxiety

The SP1 group had few reports of anxiety, representing the second least frequent mental health issue. On the other hand, anxiety had an intermediate position in terms of the frequency of mental health issues in the SP2 group. Reports of the word “anxiety” and its synonyms were grouped under this theme. The only anxiety-related account recorded in the SP1 group was in terms of general anxiety as a reaction to the set of COVID-related restrictions:

> It [the pandemic] gave me anxiety, gave me a lot of anxiety. (SP1 – Paragraph 231)

On the other hand, volunteers from the SP2 group reported general anxiety and eating disorder episodes, which were labelled A2 - Anxiety because to their correlation with the anxiety crisis:

> She developed a kind of compulsion for eating, remember Andy? She took everything out on food, she had crying fits and started laughing. (SP2 – Paragraph 253)

> I had an anxiety crisis and gained weight, some extra fat and some less fat... I reached 110kg. (SP2 – Paragraph 261)

One episode of general anxiety was also captured in the SP2 group:

> The anxiety crisis I had ended up affecting my whole body, my head, and I was kind of... (SP2 – Paragraph 301)

4.1.3 Sleeping Problems

No volunteers from the SP1 group reported sleeping problems during the COVID-19 pandemic. On the other hand, the SP2 group had three reports of impacts pandemic-related sleeping problems. Sleeping problems were captured exclusively in the SP2 group. One report of insomnia and off-label use of anti-histaminic drugs as a sleep inducer was captured:

> I couldn't sleep, she went and gave me the medicine... (SP2 - Paragraph 305)

> Then I didn't sleep for two days and then you see, I had stopped smoking, then I started smoking again. All because of this crisis. I didn't sleep for a few days until I took the medicine, then I slept for two days, didn't I? For two days in average sleeping, I couldn't speak properly, but even then, this anxiety crisis created insomnia, remember Lilith? That I stayed several days like that, I didn't sleep, she slept, and I stayed awake, sometimes I nodded off. (SP2 – Paragraph 322)

Furthermore, one capture of oversleeping also occurred:

> I used to sleep all day long [laughs]. (SP2 – Paragraph 716)

4.1.4 Emotional and/or Psychological Distress

General emotional and/or psychological distress were frequent. Both groups reported general psychological effects of the pandemic on volunteers, including crying episodes, generic statements about mental health issues, and general psychological pressure from work, education, or social relationships.

Reports of relationships ending due to distance or increased fights due to isolating were frequent:

> Then the bullshit [problem] started, anyway, in September 2020 we broke up, I was very shaken, it messed with my psychological health, right? (SP1 – Paragraph 163)

Reports of emotional distress related to educational activities, such as lack of motivation or generic episodes of mental distress, were also captured:

> There were people crying in the meeting (at the University). (SP1 – Paragraph 191)

> … because during the pandemic the motivation was no longer there, I was at a point where I thought I'm going to quit college because there is no way, anyway. (SP1 – Paragraph 227)
>
> Yes, for various reasons, both because of Covid and because of the situation there, it was neither physically nor mentally pleasant and I was already a little disturbed in my mind. (SP2 – Paragraph 235)
>
> I had a very hard time. (SP2 – Paragraph 311)
>
> He became kind of a psychopath, you know when a person hears something like that, some noise in the house, sometimes it's a kitten that passed by and he says, "someone's coming in". (SP2 – Paragraph 324)

4.1.5 Stress

Stress was the second most frequent mental health issue provoked by the COVID-19 pandemic in the SP1 group, with nine accounts. Accounts of stress from the SP1 group were mostly related to education, increased time of online activities, and work.

Captures of stressful situations in education and/or work-related activities due to the virtual environment, increased pressure, difficulties to deal with the faculty and/or superiors and/or colleagues were frequent:

> We had more work to do [at the University], more stress. (SP1 – Paragraph 167)
>
> I felt a lot of stress from spending a lot of time in front of screens. (SP1 – Paragraph 231)
>
> … it was such a stress that I couldn't fit any other thing in, I didn't have this spirit of productivity, I had this thing of waking up every morning and crying in the foetal position all day in the bathroom. [all laugh] (SP1 – Paragraph 579)

Unspecific general episodes of stress were reported by the SP2 group, probably related to economic hardship, impacts on social activities, and work:

> I remember that I was feeling bad at the general hospital here in Guaianases, a doctor said that my problem was pressure and stress, then it was ok. He gave me medicine, I took the medicine in the vein and came home, my pressure was very high, then after about ten days we went to this station, and he claimed the same thing, that my problem was stress and pressure, did not want to do neither in the hospital nor the... (SP2 – Paragraph 425)

And stress generated by social activities in the community:

> “**Robert**
>
> No, in reality what happened, when we started to observe that the lunch box they were bringing was too little for the amount of people who came, because they made it possible, 100 lunch boxes came, but the line went from this door and up to the street [distance of

about 100 metres]. It got here... at that time the deliveries were right here, then there was a line from inside here, going up, going up there, so there were more than 100 people, then when the last meal arrived, when we were delivering, how many more [were left without receiving a meal], I cried here.

Then it was when... who had the idea was Rafael that you talked to, Rafael, Rafael said "man, let's try to deliver some lunch boxes" and Lilith said "come on", then she stipulated to put 500 lunch boxes and we had no conditions for anything and then she said that someday we will have a community kitchen here, then I said, but are you crazy bro? because you don't have a community kitchen, you have no money, you have nothing with anyone, and you will make 500 lunch boxes? And she said "no, we are going to deliver 500 lunch boxes" and I said, she won't be able to do it. Then she had a friend of hers that she worked for, bought a bunch of wood on credit, made a bill of BRL 800.00 [EUR 152.42] and we couldn't pay, and I had to build in desperation and I said "Bro, you're crazy, you want to kill us" and then...

Lilith

It was the most stressful week of his [Robert's] life." (SP2 – Paragraphs 1081-1085)

4.1.6 Anger

A low frequency of episodes of anger during the COVID-19 pandemic was captured on both groups. Words like 'angry', 'furious', or 'nervous' and its synonyms were pre-established to be part of this theme. Anger episodes from the SP1 group were related to education and social distancing:

Yes, and I could feel the anger from many of my classmates too. (SP1 – Paragraph 207)

I fought with a woman who was 2 meters away, she didn't want to get close, for several reasons. (SP1 – Paragraph 337)

In SP2, anger episodes were also related to social distancing and social relations:

I got nervous, I said: "look buddy, I'm going to tell you something, today she's coming here to try to do something. If she shows up with a symptom or happens at home, I'll come back here, it's going to get mad." (SP2 – Paragraph 419)

The good thing was the people we had at the home. They wanted to assist in the best possible way, at the time I was angry. (SP2 – Paragraph 802)

4.1.7 Mental Health Support

Psychological support is not an impact of the pandemic. However, it is an important approach to overcome mental health issues, chiefly in such traumatic events like the pandemic, and differences in access may occur. For these reasons, a specific theme related to the topic was included in the analysis. While volunteers from the SP1 group reported support in terms of

psychological health from private psychologists, or support from work and education institutions, no reports of psychological support were captured in the SP2 group. A remarkable disparity regarding support on mental health issues was identified between both groups.

Reports of psychological support sometimes prior to the pandemic were captured:

> I think that .... I even commented to you in that interview, before the pandemic I already had a psychologist, a psychoanalyst that I talked to and for other reasons, my parents separated, some things like that. (SP1 – Paragraph 131)
>
> Yes, she helped me to have a conversation with the therapist as well. (SP1 – Paragraph 143)

A brief conversation between the mediator and one participant about some kind of psychological support offered by the university was captured, which reinforces the importance of educational activities as an opportunity of coping and resilience regarding mental health:

> "**Mediator**
>
> Were all these meetings online?
>
> **Frida**
>
> All online.
>
> **Mediator**
>
> And did those meetings flow? Did they have a dynamic? Were people able to...
>
> **Frida**
>
> Wow, there were four hours of meetings... 6 hours of meetings... with the board, with teachers, with...
>
> **Mediator**
>
> Your teachers listen to you complaining, whining.
>
> **Julia**
>
> There were people crying in the meeting.
>
> **Frida**
>
> Listening to us break our heads, we called the principal, called everyone.
>
> **Julia**
>
> There were employees too." (SP1 – Paragraph 180-195)

One report of psychological support from the employer was also captured:

> Just one last thing, we also had mental health support for our employees during this last period. (SP1 – Paragraph 615)

4.2 Life Perspectives

In respect of life perspectives, reports of impacts on work, leisure/social activities, and finances were captured in both groups. In contrast, reports of impacts of the pandemic on education were only captured in the SP1 group. The most frequent theme for both groups was leisure/social life. The least frequent theme was work for SP1 and education for SP2. Financial issues ranked third out of four themes, and it was perhaps the most representative in terms of the uneven burden of the pandemic between these two populations: while all accounts from the SP1 group were about positive impacts or opportunities, all reports from the SP2 group were negative.

4.2.1 Work

Impacts on work, represented by working conditions and employability, was the least frequent theme in the SP1 group. Meanwhile, in the SP2 group, work ranked second out of the four themes in terms of frequency. Impacts of the pandemic on work conditions were more frequent than on employability on both groups. There were not only negative impacts, but also opportunities identified, especially in the SP1 group. The *table 4* highlights the main findings according to each group.

Group SP1	*Group SP2*
Work Conditions	
“I went into home office after that and never went back.”	*“There were many nurses who were forced to work, there were people who cried and didn't want to have to work but they were forced, they didn't have the option to choose.”*
“I liked working from home [followed by laughs of contained satisfaction].”	*"It takes me about 3 hours to get where I had to go to work."*
“This mobility, being able to go from one meeting to another, you have a meeting with a company that you are going to have... increases your productivity but also the opportunities.”	*“Then after that we got that job [temporary job in Vila Mariana, for 30 days, together with about 60 women from the community] that the woman didn't pay anyone.”*
“I am fine and doing the internship also reconnected me with the passion for architecture.”	*“No, it's because I worked with healthcare, I cleaned there and as I said it was a COVID hospital, so I was obligated to work, I was crazy to close down there too so I could stay at home, but it didn't work out. I had to work”*
Employability	
“Then it became smooth, at the end of the year I got an internship at São Paulo Urbanismo.”	*“It's because Covid arrived, jobs were gone.”*
“It increased [job opportunities] because I work at Teto, but at the same time I teach online courses. I wouldn't have had the chance to do all three things [Teto, online courses, and university classes] because of mobility.”	*“The pandemic was heavy for me because of my work, understand?”*
	“Because I work with Carnaval [celebration], so it was cancelled, you know? In the times of the pandemic...”

Table 4. Summary of Results on Work.

4.2.1.1 Work Conditions

From group SP1, reports of a complete shift to virtual working and challenges regarding work environment and relationship with managers were captured:

> I went into home office after that and never went back. (SP1 – Paragraph 115)
>
> In the beginning there was a productivity bug, because in the first month it was over quickly, because I worked in a company with very conservative management, we went every day, we had a well-established hierarchy, they were older managers, not managers who were used to any kind of remote work, so as time went by, even with the increase in productivity in the beginning, we had no schedule for anything, we were contacted all the time, unjustifiable meetings, so it started to get really terrible, I had a lot of autonomy when I went to work in the office that I lost completely afterwards, the relationship with the managers became very toxic. (SP1 – Paragraph 596)

Nevertheless, most of the captures from the SP1 group linked to working conditions were positive:

> I am fine and doing the internship also reconnected me with the passion for architecture. (SP1 – Paragraph 227)

> This mobility, being able to go from one meeting to another, you have a meeting with a company that you are going to have... increases your productivity but also the opportunities. (SP1 – Paragraph 562)

There were also reports of an increased level of satisfaction about hybrid or virtual working environments:

> I liked working from home. [followed by laughs of contained satisfaction]. (SP1 – Paragraph 564)

> Look, I think we can't go back to that, I personally can't go back every day of the week [laughs] I think we are now at maximum, it's 2 days a week to listen to people from the team, to share time together and so on, but we have a lot of flexibility too, if someone doesn't feel comfortable they can talk, so it is a very different environment. (SP1 – Paragraph 607)

A different perspective was captured in the SP2 group. Participants reported hardship in terms of work conditions, especially for those who were working in healthcare and who were forced to be active. Reports from people about their wish to be at home, and from people who didn't receive their salaries were also frequent. No positive reports were obtained from this group:

> The hospital I worked at was a Covid hospital, so we had a lot of contact with people who had [COVID], with relatives of people who arrived, so the work wasn't doing me any good. (SP2 – Paragraph 231)

> Then after that we got that job [temporary job in Vila Mariana, for 30 days, together with about 60 women from the community] that the woman didn't pay anyone. (SP2 – Paragraph 267)

> No, it's because I worked with healthcare, I cleaned there and as I said it was a COVID hospital, so I was obligated to work, I was crazy to close down there too so I could stay at home, but it didn't work out. I had to work. (SP2 – Paragraph 923)

> There were many nurses who were forced to work, there were people who cried and didn't want to have to work but they were forced to, they didn't have the option to choose. (SP2 – Paragraph 960)

One volunteer from SP2 reported that he had to work in person while some of his workmates were sick, which put a high mental and physical pressure on the staff:

> "**Goliath**
>
> I couldn't do anything. At work, the kids played their businesses, the guys were "dying", and my boss was also contaminated, everybody for three days.

Mediator

But you went to work even when you were sick?

Goliath

We were going to work." (SP2 – Paragraph 531-535)

One volunteer also reported that it was impossible from him to be at home and to perform his job in a virtual environment. He had to walk three hours every day to reach his workplace:

"**Andy**

It takes me about three hours to get to where I had to go to work.

Mediator

Yes.

Andy

So, I walked like crazy. In the biggest rush." (SP2 – Paragraph 123-128)

4.2.1.2 Employability

Two completely different realities in terms of employability were captured between the two groups. The SP1 group reported only positive effects. On the other hand, there were several reports of impacts on employability in a completely different manner on the SP2 group.

One participant from the SP1 group got an internship during the pandemic, which brought them a more favourable situation professionally and economically:

> Then it became smooth, at the end of the year I got an internship at São Paulo Urbanismo. (SP1 – Paragraph 223)

Another participant from the SP1 group reported having the opportunity to be involved in different projects due to the virtual environment allowed by the COVID-19 pandemic. It was perceived as a benefit of the pandemic in a city with mobility challenges like São Paulo:

> It increased [job opportunities] because I work at Teto, but at the same time I teach online courses. I wouldn't have had the chance to do all three things [Teto, online courses, and university classes] because of mobility. (SP1 – Paragraph 562)

On the other side of the city, employability was captured from another perspective. Participants from the SP2 group faced difficulties regarding jobs and job vacancies, especially for those who work in service and events. The employability of participants whose jobs related to essential services (i.e.: construction, healthcare) were less affected. General verbal expressions of hardship in terms of employability and, consequently, evident mental burden was recorded:

> It's because Covid arrived, jobs were gone. (SP2 – Paragraph 202)
>
> The pandemic was heavy for me because of my work, understand? (SP2 – Paragraph 464)

One participant used to work with Carnaval-related services, a national celebration in Brazil that was cancelled in 2020 and 2021 due the pandemic. Events related to Carnaval generally occur for several weeks in a row and are economically essential for those who are involved with its organisation and related services:

> Because I work with Carnaval [celebration], so it was cancelled, you know? In the times of the pandemic... (SP2 – Paragraph 468)
>
> "**Mediator**
>
> You didn't work at the carnival either.
>
> **Jim**
>
> No [meaning he was unemployed]." (SP2 – Paragraph 906-909)

Participants or relatives with jobs related to essential services were affected. One participant who works in construction spoke about the dynamics in his field of work in the beginning of the pandemic:

> I used to work in construction. I felt a little bit like that, a break. Because yesterday I was talking to a contractor, and it is a reality that we have... I am also a contractor, so what happens? Something very similar happened... because I work with a lot of houses and many people who were investing there to renovate their houses or their rental houses vetoed it, they held back because they didn't want to spend because they didn't know how the country's finances were going to be and were worried about how it was going to be. Others were afraid to get Covid because they were worried, there were people who isolated themselves in an inexplicable way, that you say because today even to go back to talk to someone... [inexplicable way] (SP2 – Paragraph 913)

However, some of them only stopped working during the first two weeks of the pandemic and kept their jobs, which clearly resulted in a lower economic and mental pressure:

> "**Mediator**
>
> What does he work with?
>
> **Lara**
>
> Painting.
>
> **Mediator**
>
> Okay, so he was always at the race [rushing, with several tasks]?

Lara

Yes, always on those drives, right, I used to go there with him.

Goliath

I used to go with him to Itaquera [a neighbourhood in São Paulo], where he was stationed.

Mediator

And then, during the pandemic, what was it like for him? Did he continue to work fine?

Lara

I don't know... I think it was only a week, 15 days... that he stayed at home because everything had to be closed." (SP2 – Paragraph 877-890)

So, there were places, there were buildings that didn't allow people to enter to do their work, so... there was a period when he had to stay at home, but he stayed 15 days, a week. But he was fine. (SP2 – Paragraph 898)

One participant was involved in projects related to an association that provides support to the community and described the situation in the beginning of the restrictive measures in São Paulo. For instance, that they had their activities stopped:

> We were starting the association's process and we were already distributing breakfast and lunch... basic food baskets, clothes... so we had a lot of things to be donated and then we had to stop everything for 30 days until we could get the results that take so long in the hospital, and we had to stop everything, send the girls to stay home. (SP2 – Paragraph 794)

The pandemic also served as an opportunity for one volunteer from the SP2 group in terms of employability related to social support to the community. A very positive and proactive attitude from this participant was observed, regarding employability and the spirit of cooperation:

> I was already working before, already making donations, but due to the pandemic, talking to him [Robert], talking to other people from Teto fora do Teto [NGO], we were talking, and they asked, "Why don't you open an association, right?". And then we were like, "Come on, let's go". (SP2 – Paragraph 1064)

4.2.2 Education

Impacts of the pandemic in terms of education were only captured in the SP1 group. No references in terms of impacts on education were reported from SP2. Impacts on the educational environment were more frequent and appeared 17 times. Furthermore, four reports about educational status were obtained from SP1. The *table 5* highlights the main findings according to each group.

Group SP1	*Group SP2*
Educational Environment	
“They were heavier than the face-to-face classes, man. Amazingly, they halved the course load, but it was much worse, much worse than the face-to-face classes.”	
“Yes, so... it was not easy, some professors were very understanding, others not, they were more demanding.”	
“I think it also made a lot of research unfeasible, I had extension projects that could not continue because of the pandemic.”	
“I am doing postgraduate studies and I am not much in the job market, but research has also improved a lot, in this sense you can connect with more people."	-
“I spent the whole day working on the computer, having meetings on the computer, then three more hours at night having a class, and after that I would have group work, which was also online.”	
“In college I realised that several professors that before would never have had the possibility to give us a class or a lecture, started to do so. There was a professor from Rio Grande do Sul, one from Portugal.”	
Educational Status	
“I am sure that I wouldn't be studying if it wasn't possible, because it is a 100% online course from a very good university in Argentina, they have this mobility that you don't have classes at fixed times, you have deliveries every week, it is a lot of responsibility to have these weekly deliveries, but I can manage my schedule. This [online course] facilitated many things, I couldn't be studying any other way.”	-

Table 5. Summary of Results on Education.

4.2.2.1 Educational Environment

Reports about negative impacts on the educational environment were usually related to several difficulties regarding distance learning which involved mostly challenges due to the virtual environment, lack of pedagogical support, issues in terms of the lecturer’s adaptation to the new reality, difficulties to do research or to sustain research projects, and issues on group work activities.

Reports of hardship related to virtual activities and extra workload were captured:

> They were heavier than the face-to-face classes, man. Amazingly, they halved the course load, but it was much worse, much worse than the face-to-face classes. (SP1 – Paragraph 167)

> I started graduate school when the pandemic started, I had two, three face-to-face classes at the institution and then everything closed. Then we did it online and I finished the two-year graduate course that was in person, online. So, it was twice a week, at night. So, I would spend the whole day working on the computer, having meetings on the computer, then three more hours at night having a class, and after that I would have group work, which was also online. (SP1 – Paragraph 231)

Reports of difficulties with group activities due to the virtual environment were also frequent:

> It was more difficult, the group work didn't stop, you had to do group work at a distance, there weren't many [digital] tools, so for me and my friends and the people I live with, the remote class was worse than the face-to-face class. (SP1 – Paragraph 167)

Clear situations of hardship in the relationships between students and faculty were collected:

> Yes, so... it was not easy, some professors were very understanding, others not, they were more demanding. (SP1 – Paragraph 171)

Other situations impacting on research and the relationship between supervisors and students were also captured, which created a lot of uncertainty for both sides and may have led to additional mental load:

> I agree with Gabriel, but I think it also made a lot of research unfeasible, I had extension projects that could not continue because of the pandemic. I had to go to the school, talk to the students. (SP1 – Paragraph 585)

On the other hand, positive impacts on research and reports from volunteers who had the chance to attend to educational activities with students from other states or lecturers from other countries were registered:

> I am doing postgraduate studies and I am not much in the job market, but research has also improved a lot, in this sense you can connect with more people, there was not so much effort to connect the person and see other places, you did an event in a college, we went there, it was a more focused thing, but now as you did not have this opportunity you had to do it through the Internet, many seminars are open in colleges for you to attend by Zoom [application for online meetings], start talking with someone about the bias of research and so on, I think it increased a lot. (SP1 – Paragraph 583)

> In college I realised that several professors that before would never have the possibility to give us a class or a lecture, started to do so. There was a professor from Rio Grande do Sul, one from Portugal. (SP1 – Paragraph 661)

4.2.2.2 Educational Status

Impacts on educational status were always positive in the SP1 group, which means no reports on school dropout or interruption due to the pandemic. On the contrary, one volunteer reported that the pandemic allowed her to enrol in an international post-graduation course due to the virtual environment:

> I am sure that I wouldn't be studying if it wasn't possible, because it is a 100% online course from a very good university in Argentina, they have this mobility that you don't have classes at fixed times, you have deliveries every week, it is a lot of responsibility to have these weekly deliveries, but I can manage my schedule. This [online course] facilitated many things, I couldn't be studying any other way. (SP1 – Paragraph 592)

4.2.3 Leisure/Social Life

The impacts of the COVID-19 pandemic in respect of fitness or exercising, cultural activities, social activities or relationships, and hobbies were grouped as Leisure/Social Life. The *table 6* highlights main results from both groups.

Group SP1	***Group SP2***
Fitness/Exercising	
"I improved my health a lot, I lost a lot of weight."	*"Started walking more nowadays."*
"I started to use only a bicycle."	
"And the bicycle, I'm increasing its use for those who know how to use it like Henry, going to college, to work, who knows."	
"I started to walk a lot more than I was walking [before the pandemic]."	
Cultural Activities	
"I started to read a lot in the pandemic because I didn't read that much."	-

[*Continued on next page*]

Group SP1	*Group SP2*
Social Activities/Relationships	
“In my case we broke up because we couldn't see each other.”	*“For me we used to go more often to São Bernardo [city], we have relatives, so we ended up not going [due to the pandemic].”*
“I didn’t have any family members that died and personal things like that... I didn’t have any completely negative points, you know?”	*“Yes, I have bronchitis, I have chronic bronchitis, so when you said isolation, I wouldn’t have even left home because I have chronic bronchitis so I would be more... it attacks faster, I would think, no, I have a weak lung, I have bronchitis, I would die. It's better to stay at home, I was isolated indeed.”*
“Yes, she [girlfriend] helped me have a conversation with the therapist as well.”	*“It didn't change, actually I stopped going out more when my husband left [prison].”*
“I started to stay only at home, I didn't go out anymore.”	*"But we're vaccinated, with the three vaccinations we get right, we go out once a week.”*
“I feel that it increased a lot because of the third dose, everybody took the third dose, in the second dose it wasn't that much, but with the third dose people became more relaxed.”	*“Lara committed herself at home, she couldn't see anyone.”*
“I broke up during the pandemic, we were already dating long distance, he lived in Minas Gerais, and I lived in São Paulo.”	*“No. I don't go out; I just stay at home.”*
“At the end of 2020 I ended a relationship.”	*"Not since Covid started we haven't been there anymore and we used to go once a week, every 15 days.”*
Hobbies	
“I didn't stop using any modal, I started using bicycles but for recreation.”	
“I spent most of the time outside, so I had no way to keep a plant alive. Now yes, until now my apartment looks like a jungle [everyone laughs].”	-
“The first year, in 2020, instead of travelling by plane and everything else, we wanted to do an end-of-the-year trip, which we did, me and my partner went by car."	

Table 6. Summary of Results on Leisure/Social Life.

4.2.3.1 Fitness/Exercising

Both groups suffered both negative and positive impacts in terms of fitness and exercising. In the SP1 group, one volunteer said she stopped walking because of the new virtual environment of her activities, which may contribute to a worsened mental state:

> “**Mediator**
>
> And why did you stop walking?
>
> **Julia**
>
> Because I just stayed at home, there was no need to do it.” (Group SP1 – Paragraph 96-99)

Other volunteers from the SP1 group reported new biking and walking routines, followed by improvements in terms of fitness and health and a change in mode of transport in some cases:

> I started to use only a bicycle, to buy bread, to buy everything, only a bicycle. Public transportation was zero because college was no longer a necessity [with the pandemic the classes were online], my mother lives far away, but I could get there by bike... everything I did [I went by bike]. (SP1 – Paragraph 119)
>
> To my mother’s it's about 10 kilometres, but it's in the north zone, so it's uphill, then it starts going up, then from Jardim São Paulo to São Pedro it starts going uphill, so it's a good leg workout. (SP1 – Paragraph 123)
>
> Yes, anything that I could do on foot. (SP1 – Paragraph 298)
>
> I improved my health a lot, I lost a lot of weight. (SP1 – Paragraph 317)
>
> And the bicycle, I'm increasing its use for those who know how to use it like Henry, going to college, to work, who knows. (SP1 – Paragraph 685)
>
> I started to walk a lot more than I was walking. (SP1 – Paragraph 688)

Reports related to impacts of the pandemic on exercising or fitness from the SP2 group were less common, but also positive:

> Started walking more nowadays. (SP2 – Paragraph 101)

4.2.3.2 Cultural Activities

In terms of impacts on cultural activities, one single report was captured from SP1 and no references on this topic were obtained in SP2. The only report from SP1 was positive and related to reading:

> I started to read a lot in the pandemic because I didn't read that much. (SP1 – Paragraph 286)

4.2.3.3 Social Activities/Relationships

Impacts of the pandemic on social activities and relationships are closely linked to mental health and were the most frequent sub-theme for both groups. The SP1 group reported challenges but also opportunities. In the case of SP2, the impacts were mostly negative. Reports from SP1 show that the pandemic caused a disruption in the frequency of family visits:

> Interacting with people this way, also in the beginning of the pandemic we would meet with friends, right, we would have happy hours with friends, drink some wine, you could see this a lot in the beginning. With the family, I also stayed three months without seeing my family, I lived alone at the time, so the issue of living online was very stressful. (SP1 – Paragraph 231)

Also, problems related to relationships:

> In my case we broke up because we couldn't see each other. (SP1 – Paragraph 137)
>
> I broke up during the pandemic, we were already dating long distance, he lived in Minas Gerais, and I lived in São Paulo. (SP1 – Paragraph 158)
>
> Then in the pandemic, completely opposite to my family, his family was very isolated, but soon his parents started to receive suppliers at his house, but his mother didn't accept that I went to his house, you know? (SP1 – Paragraph 162)
>
> At the end of 2020 I ended a relationship. (SP1 – Paragraph 179)

And problems related to friendships as well:

> “**Julia**
>
> Losing friendships [laughs].
>
> **Frida**
>
> Yeah, reviewing friendships.” (SP1 – Paragraph 208-211)

There was a report of complete immobility:

> I started to stay only at home, I didn't go out anymore. (SP1 – Paragraph 95)

Reports showed that family members or partners were sometimes important as a coping mechanism to deal with the mental hardship of the pandemic:

> Then, in the middle of the pandemic, I went to my parents' house. (SP1 – Paragraph 107)
>
> Yes, she [girlfriend] helped me have a conversation with the therapist as well. (SP1 – Paragraph 143)
>
> It is also a relief to be able to have someone to live with. (SP1 – Paragraph 232)

> Exactly [laughs], the person is there in person, so there were also nights of relief, of being grateful that we had this relationship, we got along the way we did. (SP1 – Paragraph 236)

> But in the middle of the chaos that nobody could leave the countries, he [her father] was very determined to take the whole family to Corrientes [a small town in the interior of Argentina that borders Brazil], which is my hometown and his home. (SP1 – Paragraph 303)

The pandemic was seen as a significant opportunity by the family of one of the volunteers because it allowed them to be together in the same place after years of not doing so, presenting a clear opportunity to cope with and mitigate a potential health burden caused by isolation, distancing, and loneliness:

> They [her parents] speak very carefully about this, but that the pandemic was the best thing that happened in their lives, because they saw my nephew grow up. ... [participant starts to cry] I'm even crying [laughs], they saw my nephew grow up, that it was his second year, that it was impossible, if there wasn't a pandemic, in my family, nobody would be together, you know? (SP1 – Paragraph 315)

The same volunteer said that the pandemic didn't affect her negatively at all, reinforcing that it was an opportunity for her and for her family:

> I lived with them, so it was crazy, for me it was very good, to be honest, because I was at home and there I was always thinking, right? Because I am a very privileged person, all this personal conflict, of everything that is happening in the world, people who have nothing to live, people who were dying. I didn't have any family members that died and personal things like that... I didn't have any completely negative points, you know? (SP1 – Paragraph 316)

However, returning to the parents' home has also brought relational challenges and demanded adaptation from both sides in the case of another participant:

> I talked to other friends who also had this situation of returning home during the pandemic, suddenly, out of the blue. It was not a planned return, so... it emotionally affected the family, I for example lived alone, I had already settled down on my own, I returned to my mother's house, to my mother's rules, to my mother's time, so they already had another dynamic with Frida out of the house, they had to receive her again, so it was an adaptation for everyone. (SP1 – Paragraph 171)

There were some reports of behaviour changes in the middle of the pandemic, when people returned to their social activities and possibly started normalising the chaotic situation that the COVID-19 caused on people's lives:

> In 2020 I stayed home most of the time, in 2021 I started to get back to normal. (SP1 – Paragraph 58)

> But the pandemic was quite different for me, I told you where I travelled from, then when the situation started to improve and everything else and I travelled to visit my family that

> is my sister who lived in Mexico, in the United States, so there were all those things in between. (SP1 – Paragraph 317)
>
> I started going out more at the end of last year [2021]. (SP1 – Paragraph 467)

Reports about apparent normalisation after the vaccine were also captured:

> I feel that it increased a lot because of the third dose, everybody took the third dose, in the second dose it wasn't that much, but with the third dose people became more relaxed. (SP1 – Paragraph 478)
>
> I feel a lot like she said about the second dose, even after the second dose I was more relaxed about going out, but after the third dose I was more... but it is funny that before the vaccine and even a little after the second dose, it happened that I fought with family, family events and they said "ah, here everyone is in the same family, you can stay without the mask", then everyone took it off, but I did not take it off, then they asked me to take it off, I refused to, and this atmosphere remained... [indicating that the environment was heavier] Then at night I was alone in a corner with a mask and everyone else without. But nowadays that has passed, it is easier. (SP1 – Paragraph 498)

Reports related to impacts of the pandemic regarding social activities and relationships in SP2 were also very common. Differently from the SP1 group, one participant from SP2 reported a case of death due to COVID-19 in his family:

> I had no information, but I had a case in the family of a cousin that recently passed away, that she had Covid asymptomatically, nobody knew, her mother didn't know and then they took them to the hospital, when they got there, she had already had Covid for some time. (SP2 – Paragraph 684)

Disruption in frequency of family visits was also frequent:

> For me, we used to go more often to São Bernardo [city], we have relatives, so we ended up not going [due to the pandemic]. (SP2 – Paragraph 99)
>
> “**Renata**
>
> We used to go every Sunday to my husband's parents, but not every Sunday to my parents.
>
> **Mediator**
>
> And have you gone back to visit them or not yet?
>
> **Renata**
>
> No, not yet. Not since Covid started, we haven't been there anymore and we used to go once a week, every 15 days.” (SP2 – Paragraph 739-744)

Cases of complete immobility were also captured in SP2:

> Lara committed herself at home, she couldn't see anyone. (SP2 – Paragraph 445)

> Yes, I have bronchitis, I have chronic bronchitis, so when you said isolation, I wouldn't even left home because I have chronic bronchitis so I would be more... it attacks faster, I would think, no, I have a weak lung, I have bronchitis, I would die. It's better to stay at home, I was isolated indeed. (SP2 – Paragraph 472)
>
> No. I don't go out; I just stay at home. (SP2 – Paragraph 610)
>
> And she stayed inside the house, she didn't go out. Lilith called me to be a volunteer because she didn't leave home. (SP2 – Paragraph 686)

Cases of normalisation were also captured in SP2. People reported keeping or returning to their social activities and taking some risks in order to keep their social lives:

> Yes, but there it goes, every time I went to funk parties, I never got Covid.
>
> Then I stopped going and then what happened? I was contaminated with Covid. (SP2 – Paragraph 140 and 144)
>
> I used to go to the forró [dance hall]. (SP2 – Paragraph 716)
>
> It didn't change, actually I stopped going out more when my husband left [prison]. (SP2 – Paragraph 720)
>
> Truco [a card game usually played in bars], it was truco. And then we were drinking, everyone was drunk, spitting, you know, the biggest mess and the guy came face to face with me, my guy spit on my face all over [referring to talking close, spitting on the face of the person you're talking to], I forgot about Covid, I forgot everything, very crazy there. (SP2 – Paragraph 802)
>
> "**Mediator**
>
> So, when the problem involved having contact with other people, exposing yourself on the street, then for you it never bothered you?
>
> **Lara**
>
> Not much. (SP2 – Paragraph 857-860)

Reports about apparent normalisation after the vaccine were also captured in SP2:

> **Carlo**
>
> What about you? I was just saying that you go to funk dances.
>
> **Andy**
>
> But we're vaccinated, with the three vaccinations we get right, we go out once a week." (SP2 – Paragraph 621-624)

The pandemic was also an opportunity for a volunteer who decided to create an association that supports the local community and developed a network during the pandemic as a remarkable coping strategy:

> I was already working before, already making donations, but due to the pandemic, talking to him [Robert], talking to other people from Teto fora do Teto [ONG], we were talking, and they asked, “Why don't you open an association, right?”. And then we were like, "Come on, let's go”. Because it is expensive to open an association. (SP2 – Paragraph 1064)

> So, in reality it was the only place that many families had for breakfast. The others came, got the bread, ate and we were like... we even forgot (to eat too), because we were so happy to see people getting breakfast, having something to eat, there were people who told the story to Andy, to Lauren, to Richele and then when lunch came we were even happier because the children came and sat down there, we removed the little tables that sometimes people came and ate there. (SP2 – Paragraph 1101)

> So, even in the situation of this kitchen when it started that was what generated all this because when we managed to make and deliver the lunch boxes, which was 500, 650 lunch boxes came out, that's when a lot of this happened, because it caused an impact. People started to see, people who didn't have an association but wanted to help, they started to see here that the staff is working, come on, people started to come and help. (SP2 – Paragraph 1115)

4.2.3.4 Hobbies

The SP1 group had eight reports of positive or neutral impacts of the pandemic on hobbies. No insights about this topic were obtained from group SP2. Some of the reports were about changes in the mode of transport, which also served as a positive impact in terms of recreational activities:

> I didn't stop using any mode [of transport], I started using bicycles but for recreation. (SP1 – Paragraph 82)

> I was going to say that for me the bicycle will stay, I'm starting, it's been three months, for leisure use and everything else. I'm experimenting, seeing the city in another way, for me this is much nicer than practicality, it's this opportunity to see the city as a cyclist. (SP1 – Paragraph 681)

> Something that I would never do before, but I would do now, I live about 40 minutes walking from Ibirapuera [park], I like to go there and stay there walking, but I didn't want to go there walking. Now the Rebouças [Avenue] closes on Sunday and I just walk there, I would never do that before, now it has become a habit that I think it is cool. (SP1 – Paragraph 702)

Other participants kept their travelling routines, serving as an illustration of the neutral impact on this aspect, while adapting to care, wear masks, and changing the mode of transport:

> The first year, in 2020, instead of travelling by plane and everything else, we wanted to do an end-of-the-year trip, which we did, me and my partner went by car, I hated it, I always hated to drive long distances so I was very patient and it was the only way was by car, we won't get in any kind of public transportation and we went down [going south] and stopping, we went down and stopped and stopped until we got to Gramado [city in Southern Brazil] and then we rented an Airbnb that had a kitchen, so we didn't have to eat out, we made a huge purchase to last us the whole trip and we went in the car, then we stopped and

> cooked, visited the masked space there carefully and then we came back. (SP1 – Paragraph 647)

One volunteer also started to cultivate plants at home after the pandemic because of restrictions in terms of mobility. This person has indeed developed a new hobby after COVID-19:

> I spent most of the time outside, so I had no way to keep a plant alive. Now yes, until now my apartment looks like a jungle [everyone laughs]. (SP1 – Paragraph 280)

4.2.4 Financial

The impacts of the pandemic in regarding finances were categorised as income and purchase power and/or consuming. Receiving any kind of economic support is not an impact of the pandemic, but reports were also captured and clustered as financial aid. The main results are highlighted in the *table 7*.

Group SP1	***Group SP2***
Income	
-	*"[I'd be isolated] If I could have afforded it [financially]."* *"If I had money I'd be here until today."* *"Yeah, well, that's what I'm talking about, because if we could really afford it, I doubt that anyone would want to leave here to go to work, take a bus or do anything else."*

[*Continued on next page*]

Group SP1	*Group SP2*
Purchase Power/Consuming	
“We made the budget.”	*“Not only for Covid but for the price, because everything got more expensive. It’s difficult.”*
“I started buying a lot with Rappi [delivery app].”	*“But the worst thing is that when the [financial] aid went down things [as in, their prices] increased.”*
"I think this boosted a little the level of purchases, I bought more.”	*“But it was impossible, the changes [caused by the pandemic] reached everywhere, because after Covid we realised the changes that Andy talked about, this rising prices of everything for example, made people that could afford using Uber [mobility app] from time to time [before] stop using it, today you have difficulty, you don't do that anymore.”*
“It was a symptom not only for me, but I think that the people at home, my parents who don't even use the internet properly, started to want more things as well.”	*“And so like, we prefer to go to my mother's house walking for 2 reasons: to save [money] on the price of the ticket and not needing to wear a mask.”*
“I bought a bunch of plants; I didn't have a plant at home.”	*“If we compare the price of the [bus/train] ticket and gasoline is coming out the same thing because if you need to ride public transport every day and you need to fuel the car, is almost the same thing.”*
“The same thing as them, we buy a lot more I think, I feel that this business of staying a long time on the screen, you buy more on the internet and then starts to come more focused advertising because you already have a very clear habit for the algorithm there that did not have much before that I did not buy on the internet and it is a snowball, then suddenly you are buying a lot of things.”	*“And when the food started to increase, with rice at 30 BRL [EUR 5.72], tell me that I was impacted by this, people, because rice went to 30 BRL [EUR 5.72], even our basic food baskets stopped arriving, even the basic food baskets that used to arrive to us, gee, this is absurd, people, I can't do it.”*
“I started to buy books online and then recommendations started coming in and I just kept going.”	

Table 7. Summary of Results on Financial.

4.2.4.1 Income

The results about the impacts on income were exclusively reported in the SP2 group. No such reports were collected in SP1. Below is the report of a volunteer who said they would be at home if they had sufficient economic resources, which could also be related to working conditions and the impact on income:

> [I’d be isolated] If I could have afforded it [financially]. (SP2 – Paragraph 919)

> If I had money I'd be here until today. (SP2 – Paragraph 921)
>
> Yeah, well, that's what I'm talking about, because if we could really afford it, I doubt that anyone would want to leave here to go to work, take a bus or do anything else. (SP2 – Paragraph 925)

4.2.4.2 Purchase Power/Consuming

Both groups reported impacts on purchase power and/or consumption. However, the profile of those impacts was extremely different. While SP1 reports about purchase power and/or consumption were always positive, all reports obtained from SP2 were negative.

In the SP1 group, there were reports from volunteers who had the chance to save economic resources:

> We made the budget. (SP1 – Paragraph 236)

There were also reports from the SP1 group regarding the impacts of the pandemic on consumption behaviour, not only quantitatively, but also in terms of mode of consumption:

> I started buying a lot with Rappi [delivery app]. (SP1 – Paragraph 262)
>
> But that was it, and then Rappi and everything else, then I started going to the market, but I used more supermarket shopping apps. (SP1 – Paragraph 262)
>
> We became more in touch with the apps that grew, right? The dissemination, the contact with people, from marketplace platforms like Mercado Livre, Shoppin, Amazon [online stores]. I think this boosted a little the level of purchases, I bought more. (SP1 – Paragraph 266)
>
> It was a symptom not only for me, but I think that the people at home, my parents who don't even use the internet properly, started to want more things as well. (SP1 – Paragraph 266)
>
> I bought a bunch of plants; I didn't have a plant at home. (SP1 – Paragraph 280)
>
> The same thing as them, we buy a lot more I think, I feel that this business of staying a long time on the screen, you buy more on the internet and then starts to come more focused advertising because you already have a very clear habit for the algorithm there that did not have much before that I did not buy on the internet and it is a snowball, then suddenly you are buying a lot of things. (SP1 – Paragraph 286)
>
> I started to buy books online and then recommendations started coming in and I just kept going. (SP1 – Paragraph 286)

One volunteer highlighted the possibilities of buying household items online with the rise of the e-commerce market. While the report does not make it very clear, it suggests no negative impacts regarding income and positive impacts in purchase power:

> We changed apartments so we used to buy things for the house, I used to buy a lot of things on the internet, I live near 25 de Março [traditional and popular shopping street in São Paulo], in the beginning I used to go there a lot, of course, with the pandemic you avoid the contact, but the internet without doubts became my first option, with delivery [of the newly purchased products] in less than 1 day, you buy in one day, at most the delivery arrives the next day. I think that e-commerce in general has also created mechanisms to meet this demand. (SP1 – Paragraph 282)

Reports about the probable relationship between consumption and time spent on electronic devices, in addition to increased purchasing power during the pandemic, were also captured:

> "**Mediator**
>
> Let me get this straight, so the exposure time... you are saying that you spent more time in front of the screen.
>
> **Manuel**
>
> Also." (SP1 – Paragraph 270)
>
> Yes, exactly. I think the increase of my screen time with the increase of companies focusing on the online market... and of course the increase of purchasing power during the pandemic, I had an increase of purchasing power during the pandemic within the same job, so I think that changed a little bit. (SP1 – Paragraph 274)

On the other side of the city, reports of impacts on income and purchase power were extremely different. Several reports of the impacts of rising prices and economic hardship were collected:

> Not only for Covid but for the price, because everything got more expensive. It's difficult. (SP2 – Paragraph 99)
>
> But it was impossible, the changes [caused by the pandemic] reached everywhere, because after Covid we realised the changes that Andy talked about, this rising prices of everything for example, made people that could afford using Uber [mobility app] from time to time [before] stop using it, today you have difficulty, you don't do that anymore. (SP2 – Paragraph 107)
>
> But the worst thing is that when the [financial] aid went down things [their prices] increased. (SP2 – Paragraph 1008)
>
> ... what are you going to do with BRL 600.00 [EUR 114.32]? No matter how much you take it... I pay alimony. (SP2 – Paragraph 1014)

Several reports on the cost of transportation were obtained from the SP2 group:

> And so like, we prefer to go to my mother's house walking for 2 reasons: to save [money] on the price of the ticket and not needing to wear a mask. (SP2 – Paragraph 168)
>
> Now you would be crying today, at the price that's gasoline. [laughs] (SP2 – Paragraph 212)

> If we compare the price of the [bus/train] ticket and gasoline is coming out the same thing because if you need to ride public transport every day and you need to fuel the car, is almost the same thing. (SP2 – Paragraph 219)

Reports about the cost of food were also collected from the SP2 group:

> And when the food started to increase, with rice at 30 BRL [EUR 5.72], tell me that I was impacted by this, people, because rice went to 30 BRL [EUR 5.72], even our basic food baskets stopped arriving, even the basic food baskets that used to arrive to us, gee, this is absurd, people, I can't do it. (SP2 – Paragraph 935)

> Yes, if you receive this donation and then things start to increase the more you look, it's absurd. So, the oil is BRL10.00 [EUR 1,91] and the coffee is BRL 20.00 [EUR 3.81]. So, this is the answer for the friend, I forgot his name again. (SP2 – Paragraph 1010)

> Depending on the number of people in the house, you get three... four packets of rice, so that comes with the BRL 600.00 [EUR 114.32, Financial Aid] ...” (SP2 – Paragraph 1022)

5 DISCUSSION

This master's thesis explored how the COVID-19 pandemic impacted two different groups in terms of mental health and potential psychological triggers, which were represented by the impacts of the pandemic on the participants' life perspectives, such as work, education, leisure, and budget. One of the groups was from the expanded centre region, while the other was from the far eastern zone. Both groups were located in the Brazilian city of São Paulo.

5.1 Discussion of Results

The analysis shows that the COVID-19 pandemic had, generally speaking, a significant impact on all individuals, regardless of region and socio-economic status. Nevertheless, this research also found that the pandemic served as an opportunity from several perspectives to residents with a higher socio-economic status, and that, in the case of the evaluated populations, territory was a determining factor when it came to challenges or opportunities. The literature highlighted that the burden of the pandemic on health and economic factors was usually disproportional and that individuals with lower socio-economic levels were more negatively impacted, with fewer possibilities of coping or receiving support.

A generous amount of quantitative evidence about the impacts of the COVID-19 pandemic on mental health in the general population was generated since early 2020 and endorse these results. In the Brazilian context, Goularte et al. (2021) investigated the occurrence of mental health problems during the pandemic and found an alarmingly high prevalence of mental symptoms. Almost 81.9% of the participants reported symptoms of anxiety, 68% had symptoms of depression, 64.5% had symptoms of anger, and 55.3% reported sleeping problems (Goularte et al. 2021). In a cross-sectional study performed by Barros et al. (2020), 45,161 participants from different Brazilian regions answered a questionnaire about their state of mind and health conditions, among other topics. The survey was available between April and May 2020, when official cases of COVID jumped from 45,757 to 330,890, and the number of reported deaths went from 2,906 to 21,048 total cases. According to their results, 40% of the correspondents reported frequent feelings of depression or sadness, and more than 50% of them reported feelings of anxiety. Forty percent of those without sleeping problems before the pandemic reported experiences of insomnia after the pandemic (Barros et al. 2020).

Socio-economic disparities had already shaped the impacts of Chikungunya, Dengue Fever and Zika outbreaks in Brazil in the previous decades (Araújo et al. 2020; Carabali et al. 2021; Paixão et al. 2022). In the case of COVID-19, Santos et al. (2022) established a positive relationship between vulnerability rates and mortality using the Kaplan-Meyer estimator in cities with different levels of vulnerability, including São Paulo (Santos et al. 2022). Ribeiro et al. (2021) also established a relationship between social status and racial disparities and COVID-19 mortality rates in São Paulo. Black populations had a mortality rate of 81% in their analysis, which was 45% higher than the mortality rate for white populations in the same city (Ribeiro et al. 2021). Other publications had similar results in different perspectives. Golestaneh et al. (2020) and Williamson et al. (2020) had the same outcomes in the United States and in the United Kingdom, respectively (Golestaneh et al. 2020; Williamson et al. 2020).

With the spread of fake news, the interference caused by conspiracy theories played a major role in the country and may also have triggered a mental burden in the Brazilian population. In the first large international trial on mental health during the COVID-19 pandemic, Fountoulakis et al. (2022) showed that at least 50% of the trial population were accepting conspiracy theories as real (Fountoulakis et al. 2022).

Fear was the most frequent sub-theme related to mental health for both groups. The COVID-19 pandemic has brought several stressors and uncertainties. In addition to the fear of infection or death, other drivers of mental distress such as social isolation and economic hardship were introduced to the population. It has been described by Asmundson and Taylor (2020) as “Coronaphobia” (Asmundson and Taylor 2020). In the case of Brazil, political instabilities also contributed to this (Malta et al. 2020).

The literature, however, usually reports a broad and uncontextualized scenario. According to the presented results, comparing two populations from territories with different socio-economic levels, the impacts of the pandemic on mental health were high for all of them, but interpreted differently according to each group. Volunteers from the area with a higher socio-economic level suffered from mental health problems mostly related to isolation or relationship problems, online environments and high pressure at work or school, pure fear of infection and death, and sporadic episodes of anxiety and anger. No accounts of economic hardship were reported or captured in the SP1 group. Instead, there was a clear scenario of greater purchasing power, more opportunities to save money, greater consumption due to the absence of negative impacts on finances, and more time spent on online activities. There were no reports of volunteers from this

group who were eligible to receive financial support from the federal government. This scenario may have contributed to a lower mental burden and a higher level of resilience in its participants.

On the other hand, volunteers from the area with a lower socio-economic level suffered from mental health problems related to the social impacts of the pandemic, such as the interruption of social activities, and mostly due to financial hardship, including unemployment, the effects of the national economic crisis, and the deterioration of working conditions. Fear was also frequently observed in this group's volunteers, usually connected to financial worries and to the lack of opportunities to work from home. Several reports of volunteers who were eligible to receive financial support from the federal government – a support aimed primarily at the poorest and most vulnerable section of the Brazilian population – were captured.

This research also shows how the direct impacts of the pandemic on other factors, such as work, education, finances, and social activities were different among groups at the community level. Although it was not possible to confirm these trends through this study, it was possible to observe that the impacts on life prospects affected mental health.

Reports of fear of infection or caused by social isolation were captured from both groups. But fear of COVID-19 associated to the risk of financial hardship or bankruptcy was only captured from the territory with a lower socio-economic status. These results mirror the trends reported by authors who researched the impacts of socio-economic mental stressors in the context of COVID-19 in populations from Hong Kong, South Africa, Norway, and continental China (Chung et al. 2021; Duby et al. 2022; Reme et al. 2022; Zhou and Guo 2021). The literature reinforces the hypothesis that different stressors may have been triggered by different aspects, depending on the population's socio-economic status.

A meta-analysis of trials about inequalities and depression performed by Lorant et al. (2003) before the pandemic shows that individuals with a lower socio-economic status are more likely to be depressed, with a statistically significant odds ratio of 1.81. Their findings also established a positive dose-response relationship for economic and educational aspects (Lorant et al. 2003). Xiong et al. (2020) performed a systematic review of studies on this topic after the pandemic and found that higher rates of anxiety, depression, post-traumatic disorders, psychological distress, and stress were reported in populations from China, Denmark, Iran, Italy, Nepal, Spain, Türkiye, and the US (Xiong et al. 2020). Their findings show that several risk factors were possibly related to how these symptoms were provoked, such as gender, socio-economic status, age, perceived risk of unemployment, news from the media, student status, and literacy level.

Before the pandemic, Bonadiman et al. (2017) analysed results from the Global Burden of Disease Study 2017 (GBD-2017) and differences in prevalence, disability-adjusted life-years (DALYs), and years lived with disability (YLDs) in the Brazilian population according to each Brazilian Federal Unit (FU) (Bonadiman et al. 2020). The authors found significant differences among regions with different socio-economic levels. Nevertheless, authors could not establish a direct relationship between socio-economic status and depression due to various factors, including regional differences and a scarcity of epidemiological data.

Given this reality, this master's thesis is not sufficiently strong in terms of methods to confirm the hypothesis, but it does corroborate it. Coping strategies and support were mostly observed in SP1, the group with a higher socio-economic level. Volunteers from this group had the chance to work or study from home, were supported by psychological assistance, and reported no decrease in income or unemployment. Compared to the other group, this scenario may have contributed to a lower mental burden and probably a different perception of the pandemic, which was also seen as an opportunity and something paradoxically positive in some circumstances. Furthermore, several opportunities were generated after COVID-19 and may have contributed to a better outlook in terms of mental health: development of new hobbies, participation in new projects, attending new courses, increased physical health, more time to read, and the possibility of maintaining and saving their income.

On the other side of the city, financial impacts acted as the main triggers for psychological distress and no observations of mental resilience represented by opportunities to access cultural resources, new hobbies, exercising, any kind of support, and stable work conditions were captured.

Accordingly, the differences between the SP1 and SP2 groups regarding psychological support during the pandemic were also significant and can explain why the mental health gap between the two groups was perceived differently. The participants from the region with a higher socio-economic status brought several reports of mental health support from psychologists. This may have been due to the higher rates of formal employment and the positive relationship between access to private health insurance and employability (Cruz et al. 2022), which in theory increases access to healthcare among regular workers with formal jobs. This kind of support is probably less frequent among informal workers, which in turn highlights once more the socio-economic aspects of the unequal burden of the COVID-19 pandemic. It may also be influenced by territorial differences between the expanded city centre and Vila Benfica in terms of access to healthcare and infrastructure. Lee et al. (2022) analysed socio-economic factors and mental health in South

Korea, and found strong connections between regional factors, including access to healthcare facilities and the availability of psychiatrists and nurses to the population (Lee et al. 2022).

This analysis also observed signs of mental modulation after some time during the pandemic, mainly in terms of fear. Participants from both groups reported that they felt less fear, especially in the second year of the pandemic, and that they restarted social activities after some time. This can be explained as the effect of a natural process of normalisation of the situation. Capano et al. (2022) explored several parameters including education, work, and healthcare, and included Brazil in the group of countries that systematically suffered from collective stress (Capano et al. 2022). They also discussed the possibilities of the post-COVID era in terms of normalisation and psychological adaptation to crises.

The results of this research show that vaccination played an important role in the rates of fear among participants. Reports from volunteers suggest that fear in this population was decreased over the course of the immunisation process in some cases. Those participants were more likely to become more relaxed and to resume social activities and meet friends or family gradually during the immunisation process. International literature shows different perspectives on the relationship between vaccination and fear. Authors have explored not only the relationship between fear of vaccines and willingness to be vaccinated, but also the relationship between fear of COVID and acceptance of vaccination. Azarpanah et al. (2021) and Neumann-Böhme et al. (2020) showed that hesitancy towards the vaccination process in the US and in Europe, respectively, was triggered by fear and other cognitive reasons (Azarpanah et al. 2021; Neumann-Böhme et al. 2020). Moreover, Ganie and Mukhter (2022) stressed the importance of misinformation as an inducer of fear and anxiety, affecting mental health and vaccination programmes during the pandemic (Ganie and Mukhter 2022). In this case, vaccines can be interpreted as a trigger for fear. On the other hand, the results of Martens et al. (2022) show that individuals who agreed to being vaccinated had higher levels of fear of COVID-19 and perceived a risk of falling ill (Mertens et al. 2022). That means that populations with a greater fear of COVID-19 had a greater acceptance of the new vaccines than individuals with less fear of being infected. In the case of Brazil, vaccine acceptance is historically high (Brown et al. 2018) and remained high during the COVID-19 pandemic (Fernandes Nehab et al. 2023; Moore et al. 2021). At any rate, the relationship between being vaccinated and having less perceived risks or fear seems acceptable and was suggested by our study. Evidence corroborating our results, however, is scarce.

Regarding life perspectives, the differences between the two groups, especially in terms of work, education, and finances are remarkable. The impact of the pandemic on the working conditions

and finances of individuals in the region with lower socio-economic levels is alarming. Reports of unemployment, deteriorating working conditions and, consequently, financial crises were frequent, which is in line with Lima and Durán's (2021) evidence of inequalities and job precariousness in Brazil (Lima and Durán 2021).

Statements by participants from the region with lower socio-economic levels about the rising price of basic supplements, such as food, were common. Reports of people receiving "Auxílio Brasil", the emergency aid provided by the government to the poorest, were also frequent. Apart from the fear of exposure to COVID-19, participants said they also avoided using public transport in order to save resources. No reports of improvement in terms of wealth were captured in this group. In line with the trends found by Castro et al. (2021) and Montenovo et al. (2022), no insights from participants in this area of the city about home office practices or any kind of support from their employers were recorded either (Castro and Moreira 2021; Montenovo et al. 2022).

Montenovo et al.'s (2022) results also show the significant disparities in job losses during the pandemic between people with different levels of education in survey-based research performed in the United States. The results suggest that the unemployment rate due to COVID-19 was higher for workers with lower literacy levels. The authors also emphasise that the unemployment rate of workers with jobs that are more compatible with home office policies was 44% lower than that of workers with jobs that require personal contact. Participants from the region with a lower socio-economic status with informal jobs were also not rare. Reports of drastic changes to projects or their work routine were frequent, especially for workers with informal jobs, jobs related to services and events, and jobs that require face-to-face interactions. In terms of work conditions, one participant who worked as a cleaner at a hospital reported a very challenging work situation. The overall pressure of working with COVID-19 patients was extremely high. That is corroborated by Giannis et al. (2021). Their evidence shows that the burden of the pandemic on healthcare professionals was multifactorial, meaning physical and psychological, and goes beyond the risk of a COVID infection (Giannis et al. 2021).

Participants in the expanded centre also reported several challenges regarding work and finances, sometimes with a different perspective. The volunteers were mostly architecture and urban planning professionals with formal jobs, probable higher literacy levels, and higher economic stability. All participants in this group reported that they had the opportunity to work from home during the pandemic, another finding that is in line with evidence from Castro and Moreira (2021) and Montenovo et al. (2022). While these professionals were impacted by the economic crisis, especially by the perception of inflation, no reports of job losses were captured

in this group. On the other hand, reports of job promotions and increased income were captured, serving as additional examples of neutral or positive impacts on budget-related mental pressure. Both of these situations could have had direct and positive consequences for a lower mental burden related to finances.

Situations of economic resilience could be linked to labour stability. Such resilience was captured from participants who had the opportunity to remain economically active, cultivate their hobbies or start new activities, take advantage of opportunities related to housing, travel, and consumption, which can be interpreted as positive factors that mitigate the mental burden of the pandemic. This can also be interpreted as perspectives that are inherent to the low vulnerability rate of this population, which is tailored by the territorial setting: participants from the expanded city centre, where most of the formal jobs are concentrated, kept their jobs, and spent less money on activities that were mainly affected by the restrictions (i.e.: travel, fuel, transport), didn't experience much of an impact on their incomes, and started spending more money online (i.e.: entertainment, gastronomy). By maintaining their purchasing power and having fewer expenses, consumption seems to have increased. This can be interpreted as a natural consequence of a positive economic situation, translated as "earning the same or more, spending less".

These changes in purchasing behaviour or consumption levels could also be explained as coping. Sneath et al. (2009) observed changes in consumption behaviour after Hurricane Katrina in residents of the US Gulf and defined their results as a coping strategy due to a stress-related disaster (Sneath et al. 2009). Kennett-Hensel et al. (2012) also observed that this type of catastrophic event can alter consumers' perception of possessions and affect their consumption behaviour (Kennett-Hensel et al. 2012). In terms of economic support, no reports of financial hardship were captured in this group, nor were there reports of people receiving "Auxílio Brasil". The possibility of participants hiding economic hardship and the fact that they were receiving economic support is unlikely but must be considered.

The COVID-19 pandemic also caused alarming consequences in education. The changes in educational institutions due to the restrictive measures were abrupt and consequently very challenging for both students and lecturers. Online classes limited contact between students during group work and hindered their study-related social activities. Lecturers had to rely on new technologies and a new reality of distance learning. According to Nicola et al. (2020), more than 100 countries established education-related policies to tackle the pandemic, including drastically reducing school hours or completely closing schools (Nicola et al. 2020). The authors underscore the fact that COVID-19 impacted students at all levels of the education system globally. In 2020,

UNESCO stated that nearly one billion students were impacted by localised or nationwide educational disruptions (UNESCO 2020). Grover and Wright (2022) assessed the impacts of the pandemic on architecture-related educational activities in the United Kingdom and suggest that students were dissatisfied with virtual classes (Grover and Wright 2022). The authors also underscored the negative consequences in terms of support and interactions.

In line with the literature, the focus group brought several reports of educational hardships, especially regarding online classes. Reports of problems faced by students due to this new educational environment were frequent and led directly to higher levels of stress and episodes of anger or frustration. Although some of them reported major issues caused by distance learning, no reference to problems with infrastructure (internet connection, lack of space at home, problems with electronic devices) were captured in the SP1 group. Paradoxically, the pandemic served also as an opportunity for the expanded centre group in terms of education. According to Lockee (2021), the pandemic erased the boundaries between traditional and distance educators, extinguishing some taboos around virtual classes and allowing traditional methodological approaches to adapt positively to a new reality (Lockee 2021). Volunteers reported that distance learning allowed them to attend a new postgraduate course and also to start courses abroad or in an international environment. Here, the participants recognised that these new situations would not have been possible without the new reality of online classes. That means that while the people in the expanded centre group faced several challenges in terms of education, they also had the opportunity to start new projects and to continue studying. These observations also point to a clear scenario with high potential to offer a positive outlook in terms of mental health as a direct or indirect effect of the pandemic.

On the other side of the city, no statements or reports about education were captured in the Vila Benfica group. Participants were not attending educational programmes or were enrolled in regular courses, which does not necessarily mean that this side of the city was not affected in terms of education. Firstly, this can be interpreted being related to the age range of participants, who were probably neither in primary or secondary school, nor attending to higher degree courses due to lower schooling levels. Apart from having high standards of excellence in higher education and universities, the rate of people with a higher education in Brazil is not high and is unequal in terms of regions (OECD 2022c). As of 2022, a small proportion of Brazilians held master's (0.8%) and doctoral (0.3%) degrees (OECD 2022c). Secondly, the outskirts of the city usually concentrate people with lower literacy levels (Ferreira et al. 2022). That means it may be less common for adults from this part of the to attend higher education programmes. Third, the time

and resources of the people on the outskirts of the city may need to be concentrated on work and obtaining sources of income for their subsistence. This can be accompanied by high mental pressure related to said subsistence. Participating in educational activities can increase and provide better social and economic circumstances, which can contribute to positive effects on mental health. Based on these premises, it is clear that the impacts on education were high from various perspectives for all students, but were probably higher for those with lower socio-economic levels, with high rates of school dropouts and alarming impacts on learning (Lichand et al. 2022; Tsolou et al. 2021).

There were also reports about the impacts of the COVID-19 pandemic on leisure and social activities. Due to the restrictive measures and coupled with a wave of misinformation regarding social distancing and the use of masks, participants attended social events such as gatherings of family and friends less frequently, as a preventive behaviour to avoid self-contamination or the contamination of relatives, especially the elderly. Despite the recommendations of physical distancing and isolation, there were reports of attendance of social or family events in the beginning of the pandemic, followed by disagreements between family members regarding compliance with the recommended measures (i.e.: hygiene, use of masks, distancing). A systematic review of 43 studies shows that negative experiences of family and social relationships during the pandemic were extremely frequent (Hosseinzadeh et al. 2022).

Work and education restrictions also caused indirect impacts on social activities related to jobs and educational activities, which is also in line with the trends presented in the Hosseinzadeh et al. (2022) results. Some statements reinforced that people from both groups, especially those who could not be at home for professional reasons, stopped meeting their relatives as much as they could, in accordance with the restrictive measures recommended by local authorities. However, some insights from both groups suggest that people got used to the idea of a new reality and decided to gradually restart their social activities as time went on.

According to Capano et al. (2022), normalisation or adaptation to the “new normal” situation of the pandemic is a phenomenon that is currently being triggered by the relaxation of restrictive measures, since we are living the beginning of a new post-COVID era, as the authors suggest that a return to the *status quo ante* is unlikely (Capano et al. 2022). The relationship between the improvement in the epidemiological profile (i.e: new COVID infections, mortality rates, number of people in ICUs) and the progress of the immunisation process against COVID with the increase in risk behaviour also seems reasonable but is not supported by the literature.

In the group with volunteers from the region with lower socio-economic levels, reports of going to parties and bars were not rare. Holiday gatherings (New Year's Eve, Christmas Day) were also frequent. Similar insights were captured in the expanded centre group, not only in terms of not respecting the existing social distancing recommendations and restrictive measures, but also examples of normalisation and risky behaviour during holidays or taking part in social events. Conversely, there were frequent reports of relationships ending, several months of social interaction exclusively through online platforms, and loneliness.

Opportunities related to social activities and/or relationships were also reported and captured in both groups, especially in the region with higher socio-economic status. Individuals in SP1 showed a high level of mental resilience. They had more opportunities to start new hobbies (i.e.: biking) and stay physically (i.e.: exercising) and culturally (i.e.: reading) active. This goes against what recent literature shows from the perspective of the general population, probably due to a higher level of resilience leveraged by the higher socio-economic level of this population. Researchers mainly found negative impacts on hobbies and general activities during the pandemic in children from countries that faced severe lockdowns (Moore et al. 2020; Panarese and Azzarita 2021). They also confirmed that adults had suffered major disruptions to their lifestyles, such as exercise and how they used their time (Giuntella et al. 2021).

On the other side of the city, participants reported the development of a new project during the pandemic to support the community with donations and activities. This can be interpreted not only as an opportunity, but as a coping strategy that supported the individuals of that neighbourhood not only in terms of resources (i.e.: food, clothes, general donations), but also as an extremely positive movement to socially engage the local population, which can contribute positively to the mental health of those supporting and those who are supported.

5.2 Discussion of Methods

This research has strengths and limitations. First, as a qualitative study with a small number of volunteers and a limited geographic location, the external validity of results at a population-level is compromised. Secondly, focus groups are a demanding process in terms of logistics: preliminary steps include organisation, then data collection, audio transcription, translation, and data analysis. This could pose several potential methodological threats to the trial. Thirdly, the data analyst is Brazilian and spent 19 months in the city of São Paulo during the COVID-19 pandemic, which may have led to researcher bias. Empathy with the volunteers and the analysis of situations through the eyes of the subjects may occur. For this reason, this research may be

affected by a type of interference called *researcher presence.* According to Yanow and Schwartz-Shea (2012), this phenomenon can incorporate additional knowledge into the trial setting from an external perspective (Yanow and Schwartz-Shea 2012). Consequently, the interpretation of the results may be affected by the emotional and physical interference of the researcher.

Contrariwise, it can also provide a richer understanding and interpretation of the data obtained from real people about real life aspects of the COVID-19 pandemic. As a qualitative study, deeper understanding on a personal level through analysis is possible. That is crucial for a better understanding of the impacts of the pandemic from the community's standpoint, and it contributes to the development of policies geared towards local and specific unmet needs. The richness of the data and the perspective of this analysis could also represent an important contribution to public health sciences and to the local communities of São Paulo.

6 CONCLUSION

This exploratory research concludes that the consequences of the COVID-19 pandemic on the mental health of residents of the expanded centre and Vila Benfica in São Paulo were diverse and highly influenced by territorial and socio-economic aspects. Unequal impacts on work, education, social activities, and financial aspects shaped states of mind, triggered mental disorders, and affected individual mental resilience differently, with a strong geographical influence. This research also suggests that even catastrophic events may represent an opportunity for populations with better socio-economic conditions, who have a better chance of coping with these situations and maintaining mental resilience. Besides reinforcing the urgency of inclusive policies to address social inequalities, this project highlights the importance of tackling the mental health consequences of the COVID-19 pandemic by taking community factors into account, in order to achieve more precise and effective outcomes. It is likely that most of the victims of COVID-19 in São Paulo were in fact victims of social inequality. The development and gathering of more evidence with broader populations and in different Brazilian cities, especially those with higher levels of vulnerability and/or lower socioeconomic rates, is highly recommended.

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APPENDIX A – WRITTEN INFORMED CONSENT TERM

[Translated from the original version in Portuguese]

FREE AND INFORMED CONSENT TERM

You are being invited to participate in the research Project "Voluntary Geographic Information in the COVID-19 pandemic in the Global South" in the city of São Paulo. Your collaboration in this study is VERY IMPORTANT, but the decision to participate is VOLUNTARY, which means that YOU will have the right to decide whether or not to participate, as well as to give up participating at any time. This research, carried out in partnership with the University of Hamburg, aims to understand the motivations behind mobility behavior during the pandemic, as well as exposure to the virus in different social groups living in three different areas in the municipality of São Paulo. We guarantee that confidentiality of information and ANONYMITY will be maintained. That is, your name will not be mentioned in any case or circumstance, even in scientific publications. The RISKS related to this study are linked to a possible tiredness due to the time of completion of the questionnaire, biographical grid and/or participation in the focus group, as well as some kind of discomfort or embarrassment regarding the questions asked by the researcher. The BENEFITS related to participation in the research may be indirect or resulting from reflections about changes in their mobility and exposure to the virus in recent years, which can be raised by the answers to the questionnaire, the biographical grid and by participation in the focus group. By prior appointment, a questionnaire will be completed with a trained researcher. In addition to sociodemographic questions, the questionnaire will be related to mobility choices and behaviors of exposure to the virus during the COVID-19 pandemic period. Next to the questionnaire, a Biographical Mobility and Health Grid will also be completed, which represents a timeline of mobility behavior in the last three years - from 2018 to 2021. The grid aims to establish a visual record of the mobility and health experience before the pandemic, as well as the dynamics of change during it, involving topics related to changes in residence, employment, education, family and health aspects. Later, by prior appointment, you will be invited to participate in a face-to-face focus group among the volunteer participants of the survey, the interview will be recorded audio to collect testimonials and discussions that occurred during the conversation. The discussion will be focused on the topics related to the questionnaire and the biographical grid, through which we seek to deepen the knowledge about mobility choices and behaviors of exposure to the virus during the covid-19 pandemic period. The group will take place in person in an open place and will last around 2h. All measures of social distancing will be respected for the event. If you are interested in the results of the study, it will be through scientific publications and the official research website (create one for the project). In case of doubt, you can contact _____.

DATA FROM THE RESEARCHER RESPONSIBLE FOR THE RESEARCH PROJECT:

Full name:

Doc. Identification:

Full address:

Email address:

VOLUNTEER ID AND CONSENT:

Full name:

Doc. Identification:

FEELING/CONSENT OF VULNERABLE PARTICIPANT (When it comes to vulnerable population):

Full name:

Doc. Identification:

IDENTIFICATION AND AUTHORIZATION OF THE LEGAL GUARDIAN (When it comes to vulnerable population):

Full name:

Doc. Identification:

Place and date:

(legal representative identified above)

APPENDIX B – TABLE 8: CODEBOOK

Codebook: Codes, themes and sub-themes
A - Mental Health
A1 - Fear
A2 - Anxiety
A3 - Sleeping Problems
A4 - Emotional and/or Psychological Distress
A5 - Stress
A6 - Anger
A7 - Mental Health Support
B - Life Perspectives
B1 - Work
B1.1 - Work Conditions
B1.2 - Employability
B2 - Education
B2.1 - Educational Environment
B2.2 - Educational Status
B3 - Leisure/Social Life
B3.1 - Fitness/Exercising
B3.2 - Cultural Activities
B3.3 - Social Activities/Relationships
B3.4 - Hobbies
B4 - Financial
B4.1 - Income
B4.2 - Purchase Power/Consuming
C - Assessment
C1 - Negative
C2 - Neutral
C3 - Positive

APPENDIX C – TABLE 9: THEMATIC MAP

Code	Themes	Themes Characteristics	Sub-Themes	Sub-Themes Characteristics
A - Mental Health	**A1 - Fear**	*Reports of fear in general or specific situations. Words like "fear", "panic", "agony", "desperate". Synonyms will be captured as A1.*	N/A	N/A
	A2 - Anxiety	*Reports of the word "anxiety" or "anxious" in general or specific situations, including eating disorders.*	N/A	N/A
	A3 - Sleeping Problems	*Reports of sleeping disorders.*	N/A	N/A
	A4 - Emotional and/or Psychological Distress	*Reports of non-specific emotional and/or psychological distress (i.e.: reports of general psychological or emotional problems/impacts such as "it affected me psychologically", "I was out of my mind", "it affected my head", agony, lack of motivation, compulsion, sadness/unhappiness, and crying spells) and use of or lack of psychological support.*	N/A	N/A
	A5 - Stress	*Reports of stress episodes; capture of the words "stress" or "stressful" and synonyms like "tension", "pressure", "tensity".*	N/A	N/A
	A6 - Anger	*Capture of the words "angry", "angriness", "anger" and synonyms like "irritated", "irritability" and "rage" will be considered A5.*	N/A	N/A
	A7 - Mental Health Support	*Reports of psychological assistance or support*	N/A	N/A
B - Life Perspectives	**B1 - Work**	*Reports of impacts on work conditions: overall conditions (informality, home office, hybrid scheme) and employability (getting a new job, losing job, being promoted).*	B1.1 - Work Conditions	*Reports of general work conditions (informality, home office, hybrid scheme, pressure, poorer or improved working conditions)*
			B1.2 - Employability	*Reports of getting a new job, losing job, being promoted*
	B2 - Education	*Reports of impacts on education: positive impacts (i.e.: starting a new course), negative impacts (i.e.: absenteeism), problems/opportunities because of homeschooling.*	B2.1 - Educational Environment	*Reports of challenges regarding pedagogic support, online environment of classes, social interaction among students*
			B2.2 - Changes in Educational Status	*Reports of important changes on educational status such as absenteeism, starting a new course*
	B3 - Leisure/Social Life	*Reports of impacts on leisure: positive or negative impacts on fitness/exercising, cultural activities (i.e.: books, films, TV, music), travelling, social activities, relationships, housing and general hobbies.*	B3.1 - Fitness/Exercising	*Reports of impacts on fitness, physical activities and exercising*
			B3.2 - Cultural Activities	*Reports of impacts on cultural activities like books, entertainment (TV, movies, music), arts.*
			B3.3 - Social Activities/Relationships	*Reports of impacts on meetings, parties, physical contact with relatives, social relationships, social communities/social network (organisations, associations).*
			B3.4 - Hobbies	*Reports of impacts on general hobbies including travelling*
	B4 - Financial Status	*Reports of impacts on income and financial status: income, purchasing power and consumption.*	B4.1 - Income	*Reports of impacts on income*
			B4.2 - Purchase Power/Consuming	*Reports of impacts on purchase power and/or overall impacts in finances, and consuming behavior*
C - Assessment	**C1 - Negative**	*Negative impact of the pandemic*	N/A	N/A
	C2 - Positive	*Positive impact of the pandemic*	N/A	N/A
	C3 - Neutral	*No impact or neutral impact of the pandemic*	N/A	N/A

APPENDIX D – FIGURE 8 AND FIGURE 9: PORTRAIT OF RESULTS

Portraits of results follow below and shows the distribution of group of codes, themes, and sub-themes.

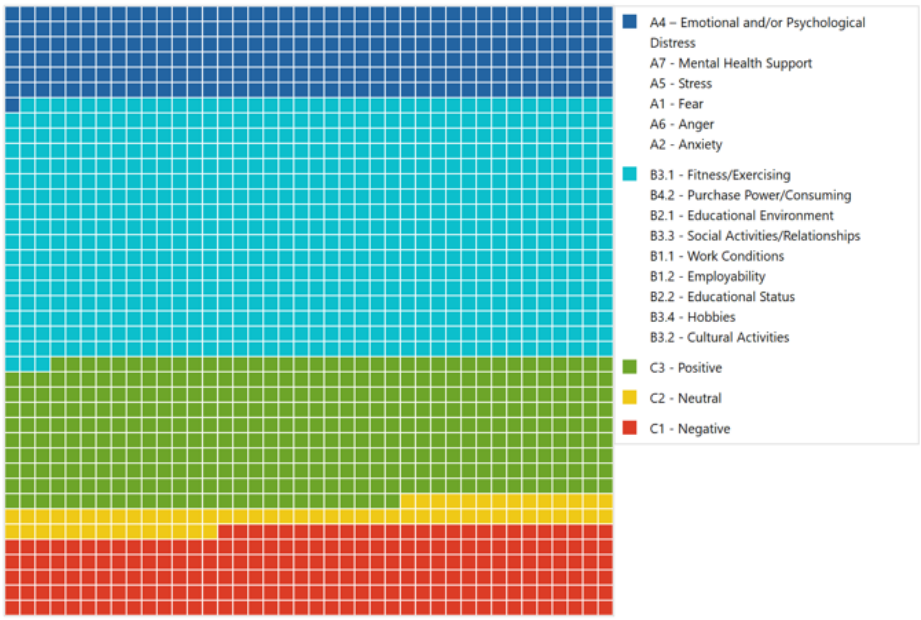

Figure 8. Description SP1.

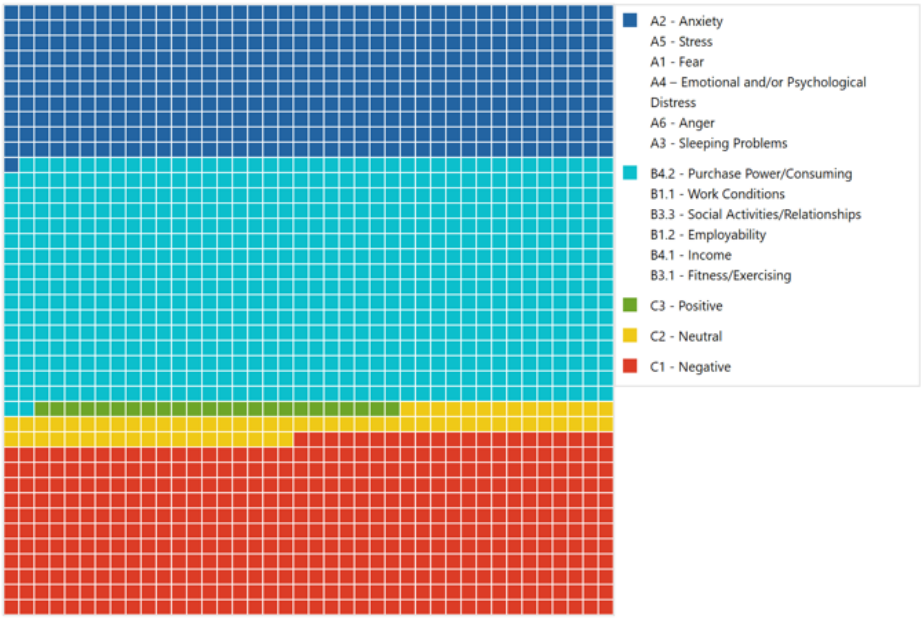

Table 9. Description SP2.

APPENDIX E – DECLARATION OF ACADEMIC HONESTY

Hereby, I declare that I have composed the presented master thesis independently on my own and without any other resource than the ones indicated. All thoughts taken directly or indirectly from external sources are properly denoted as such.

Hamburg, 11 September 2023

Sergio Gresse Junior