

# Identifying impacts of Covid-19 pandemic on vulnerable populations: a mixed-methods approach

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As the Corona-Crisis unfolds, scholars around the world realize that the social contexts in which its transmission occurs deserve special attention. In this context, one of the main concepts social scientists should consider to help tackling this crisis is vulnerability. This paper proposes a methodology to study vulnerable populations during the COVID-19 pandemic in the city of Curitiba, one of the main Brazilian metropolises. The proposed methodology encompasses three different strategies, in a mixed-methods approach: i. In-depth telephone interviews with vulnerable people and community leaders who work with them; ii. Online surveys with the city's general population; iii. Focus groups coupled with alternative scenarios methods involving key actors in the community life of the city. In addition to the research findings themselves, our methodology also envisages fostering initiatives by public authorities and civil society to mitigate the effects of the pandemic over vulnerable populations.

*Keywords:* COVID-19; mixed-methods; vulnerability; survey research; social capital

## 1 Introduction

During pandemic outbreaks, such as those of SARS in 2003 and H1N1 in 2009, most attention from public authorities is directed towards protecting members of the population who are at heightened risk for medical complications. However, it is also important to acknowledge vulnerability through the lens of the social determinants of health (Mikkonen & Raphael, 2010). In fact, in the context of pandemics, there is a social gradient of risk based on social vulnerabilities that are likely to lead to increased exposure to the contagion, risk of basic human needs not being met, insufficient support, or inadequate treatment (O'Sullivan & Bourgoin, 2010). Therefore, pandemics are situated in a complex network of place-specific interactions between people, social institutions, the physical environment, and the infectious agents (Mayer, 2000), and then demand a "Whole-Society-Approach" which extends beyond the medical sphere and considers broader psychosocial and socio-economic impacts (WHO, 2009).

Within the new COVID-19 pandemic context, we are about to witness again the utmost importance of social factors for human health. As the Corona-Crisis unfolds, we realize more clearly that, although epidemiological analysis and diffusion modeling shed some light on the spatial and temporal dynamics of pandemics, they fail to address the social

and political-economic contexts in which transmission occurs (Kissler, Tedijanto, Goldstein, Grad, & Lipsitch, 2020; McLafferty, 2010).

One of the main concepts social scientists should consider to offer a significant contribution in tackling this crisis is vulnerability, that could be understood as the ability to resist, cope with, and recover from external stresses (McLafferty, 2010). Although vulnerability is strongly associated with poverty, during a pandemic outbreak it will be a result of the interaction between social determinants of health that goes beyond poor people. They include those who experience social disadvantage (such as financial insecurity and the absence of a social safety net), have low literacy levels, are coping with addictions, have functional limitations influencing their ability to live independently and meet daily basic needs, among others (Alwang, Siegel, & Jorgensen, 2001; Delor & Hubert, 2000; O'Sullivan & Bourgoin, 2010).

Even though the entire population must receive health and social care during a pandemic crisis, we argue that vulnerable people deserve special attention, considering they have even less access to resources to face such a situation. Therefore, we put forth herein a research design to study vulnerable populations during the COVID-19 pandemic outbreak. More specifically, we will address as a case study the vulnerable citizens of Curitiba, one of the main Brazilian metropolises. This city was chosen because our research takes place within the activities of the "Cidade da Gente Program", which is a civil society program that seeks to unite the community leaders of Curitiba to create a legitimate and effective collaborative platform for enhancing the city's democratic culture.

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Nevertheless, nothing prevents our methodology from being replicated in other cities.

The methodology proposed encompasses three different methods, in a mixed-methods approach:

1. In-depth telephone interviews with vulnerable people and community leaders who work with them;
2. Online surveys with the general population of the city;
3. Focus groups coupled with alternative scenarios methods involving key actors in the community life of the city.

In addition to the research findings themselves, our methodology also envisages fostering initiatives by public authorities and civil society to mitigate the effects of the pandemic over vulnerable populations. Our research methods might be especially valuable to strengthen social capital as a means of fighting the adversities from the COVID-19 pandemic among vulnerable citizens since recent findings show that it has played a relevant mitigating role during other distressful crises (Asri, Nuntaboot, & Festi Wiliyanarti, 2017; Economou et al., 2014; Ransome et al., 2018; Straub, Gray, Ritchie, & Gill, 2020; Zoorob & Salemi, 2017).

## 2 Research design

In order to study the problems and concerns faced by vulnerable communities during the COVID-19 pandemic, we need to rely on exploratory methods of research, which aim to map a phenomenon still barely known (Singleton & Straits, 2009). Exploratory studies typically demand a flexible research design to cover many different aspects of the unknown phenomenon (Selltiz, Jahoda, Deutsch, & Cook, 1975). Hence, we adopt a mixed-methods approach to our research design encompassing three general phases:

### 1<sup>st</sup> Phase – In-depth interviews

This phase consists of telephone interviews using semi-structured questionnaires with an intentional non-probabilistic sample of community leaders and vulnerable people located in specific neighborhoods with a high incidence of vulnerability. The population living in the 15 most vulnerable neighborhoods of Curitiba, which are the ones encompassed in our research, comprises 587,345 individuals according to a recent survey (Instituto de Pesquisa e Planejamento Urbano de Curitiba, 2015). This accounts for approximately 33,5% of the entire population of the city (Instituto Brasileiro de Geografia e Estatística, 2010).

To define them, we have made a pre-screening process using publicly available databases on indicators related to the social determinants of health, such as a) Income and income distribution; b) Social and physical environment; c) Education and literacy; d) Employment and working conditions; e)

Early life and child development; f) Ethnicity, culture, and language; g) Age and disability; h) Gender; i) Access to health services. The idea was to understand the main concerns and perspectives about the pandemic outbreak within the vulnerable populations, so we can grasp relevant topics to be addressed in the next research phases.

In order to obtain individuals' phone numbers, we relied on the social networks and connections from the "Cidade da Gente Program" to build a list of potential community leaders from the vulnerable neighborhoods who could be reached out. After interviewing them, we asked each leadership to provide the name and telephone number from at least one more ordinary citizen from their specific community who would be willing to talk to us about their perceptions and needs during this crisis. In the end, we managed to conduct a substantial number of in-depth interviews with people from vulnerable regions of Curitiba in this phase, although refusals also occurred, just as expected.

### 2<sup>nd</sup> Phase – Online surveys

This second phase consists of online surveys using structured questionnaires with a non-probabilistic sample of people from Curitiba, with a special focus on people from the vulnerable areas of the city. The idea is to employ social network sites to diffuse the survey as most as possible and gather a substantial amount of respondents. We also relied on our connections with community leaders to ask them to encourage the citizens to answer the survey. With the data collected, we will be able to depict some broad trajectories (or pre-scenarios) that will be valuable inputs for the next research phase.

Nevertheless, it is worth mentioning that even with the mediation from community leaders, we acknowledge that very poor neighborhoods are likely to be underrepresented in our online survey. In order to overcome this issue to some extent, we followed two strategies: 1) we contacted the owners of Facebook pages that produced content targeting these communities and asked them to share the link to our survey. They usually post memes connected to local contexts and reach a broader audience with more capillarity than we were able to achieve by ourselves; 2) we also resorted again to telephone interviews by calling people indicated by community leaders to make it easier for them to answer the survey since most population living in these areas have poor internet access.

Our survey uses questions previously elaborated by other public opinion researches on the Corona-Crisis, but it also has some singularities. Since we aim to diagnose the problems and concerns people face and possible scenarios they see as likely after the COVID-19 pandemic, part of the questions copes with such issues – and the possible responses are adapted accordingly. Besides, some of them also measure variables on social capital, understood as resources derived

from social networks in the civil society (Putnam, 2015), which is a very relevant topic for the “Cidade da Gente Program”. We believe this comprehensive procedure is important to allow the tool to be used to improve vulnerable communities’ quality of life, addressing their direct needs through a community-based approach.

### 3<sup>rd</sup> Phase – Focus groups and scenarios

This phase consists of conducting three online focus groups with key actors and stakeholders from Curitiba. We aim to explore possible scenarios for the unfolding of the pandemic within vulnerable populations of the city and to elicit potential leverages to avoid the worst scenarios and reach the most positive one. For this phase, we combine focus groups with the method of alternative future scenarios, which is typically used in foresight exercises, such as prospecting and roadmaps.

A focus group is a planned discussion among a small group (Cardano, 2017). Its goal is to obtain information on people’s preferences and values about a defined topic while allowing them to interact with others, following a structured discussion (Slocum, 2003). The alternative scenarios approach, in turn, is a description of possible futures that emphasize relationships between events and decision points. It is typically used when the problem is complex, with a high probability of significant change, the dominant trends may not be favorable, and the time-horizon is relatively long (Slocum, 2003). Hence, the context of the COVID-19 pandemic is very conducive to this method. This approach, however, is usually developed through a procedure that takes at least six months. Considering the urgency of the pandemic, it is not feasible to wait this long, and that is why we chose to combine it with focus groups.

Each of our focus groups will be composed of about 7 people from diverse segments of society, such as journalists, politicians, civil society leaders, businessmen, and bureaucrats. The online meetings will be around 1h30min long and they will discuss the possible scenarios for vulnerable people in the after-pandemic life and which strategies might be used to tackle them (either to achieve the best scenario or to avoid the worst alternatives). The expected output of the focus groups is a document in which these people, who are opinion leaders in Curitiba, present the most likely scenarios to society and public officials, and invite them to engage in making the best scenario come true.

### 3 Envisaged results

The methodology proposed is part of an ongoing research which is currently moving from the first to the second phase as described above. Therefore, we already have some preliminary results that might be briefly presented. The results from the in-depth interviews with community leaders and vulnerable people indicate that economy and employment are the

major concerns in vulnerable neighborhoods from Curitiba. Since a large part of these communities is composed of citizens who are not formally employed, the social isolation policy directly affects their income. The other concerns touch upon the topic of health care. Vulnerable citizens are worried about a collapse in Curitiba’s health care system and say the pandemic has also harmed their mental health. Further details of these problems are going to be addressed through the online survey.

More than the findings themselves, the research design that we put forth might also raise awareness of the impacts of the COVID-19 pandemic in vulnerable populations, reinforcing the importance of public policies and social actions to reduce the negative effects on this public. For this to happen, the presentation of possible scenarios is going to rely on a public relations strategy, aiming to become an issue in local media. There is also a strategy of communication campaigns in partnership with the main local media outlets.

We expect that the production of scenarios with inputs from people directly affected by the problems might function as a guide to government and civil society initiatives. After all, one of the main findings in the literature points out that differences in power and political culture among societies matter a lot for the health and economic consequences of pandemics (McLafferty, 2010). This means that research designs with a byproduct of empowering people and strengthening social capital shall be very welcomed in the current situation since these variables have proved relevant in previous similar experiences (Asri et al., 2017; Zoorob & Salemi, 2017).

## 4 Final remarks

We sustain that the research design presented herein might be useful for different purposes, both to research-centered activities and to guide actions of public officials or civil society organizations. It is necessary, however, to highlight some limitations of our proposal, especially as regards the difficulty of reaching vulnerable people during a social isolation policy.

The in-depth interview process did not face big problems because it is possible to conduct it via telephone and most people in Brazil have cellphones. The main limitation, however, relies on the online survey data collection. Since it is not possible to ask people about their concerns in person, we had to resort to an online survey. The problem is that a significant part of vulnerable people in Brazil has a limited connection to the Internet, making it harder for them to access the questionnaire (Comitê Gestor da Internet no Brasil, 2019). To overcome this, we rely on community leaders spreading the survey around their networks, reaching a broader audience in such neighborhoods, and increasing our chances of getting a reasonable amount of responses. This strategy reinforces the importance of community leaders as a voice and

a connection to such communities, although it does not cope with the issue of having a non-probabilistic sample that will likely present limitations in terms of its representativeness.

Naturally, we are aware of the problems of relying on community leaders to indicate who could be interviewed, as they have a particular perspective on their neighborhoods, but this was the only option to hear vulnerable people's concerns. Creating an online snowball sample brings a set of limitations, even when complemented by telephone interviews, especially because our target group is typically hard to reach. To work around this issue, we endeavored to balance the sample by having at least 5% of our respondents from each of the ten administrative regions of Curitiba. Still, the low representativeness of some vulnerable populations, such as homeless people, is practically unavoidable and we must accept this shortcoming in our research.

Another point that deserves caution is combining two methods in the third phase. We argue that our research design provides a resourceful approach to the situation, given time and physical constraints we currently face. Nevertheless, reducing a six-month process to a three-month one presents some problems, such as a scarcer discussion. At the same time, we state that the cost-benefit of producing a faster diagnosis of possible scenarios surmounts the limitations.

In the end, we must also consider the political context in which the discussion is happening. The political debate is especially important in Brazil since the public authorities do not have a common understanding of how to handle the COVID-19 pandemic. In this context, it is even more important to approach vulnerable people, which tend to present lower levels of information, as well as less cognitive and economic resources, to understand the crisis and the precautions that should be taken to reduce it. This also reinforces the benefits of using a local-based approach, in which the specific needs of the communities are taken into consideration.

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