



The perspective of brazilians on information related to Covid-19: a bioethics-based analysis

Perspectivas de brasileiros sobre informações relacionadas à Covid-19: uma análise baseada na bioética

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ABSTRACT

The objective was to evaluate the perspectives of Brazilians regarding the experiences related to access to information about Covid-19 reported during the critical period of the pandemic in Brazil. A mixed, quanti-qualitative instrument was developed, constructed, and analyzed from an interdisciplinary framework in the field of bioethics. The 525 participants in the survey, which took place in June 2020, shared perspectives that indicate concern with access to qualified information, with the non-propagation of fake news and with the distrust of information coming from the federal government, in contrast to greater confidence in scientific sources, and municipal and state governments. Knowledge about how Brazilians related to information about Covid-19 is essential for preventive, educational and regulatory measures to be effective in the formulation of public health policies in a post-pandemic future.

Keywords: Bioethics. Knowledge. Research. Global health. Sustainability.

RESUMO

Objetivou-se avaliar as perspectivas de brasileiros quanto às experiências relacionadas ao acesso às informações sobre a Covid-19 relatadas durante o período crítico da pandemia no Brasil. Foi elaborado instrumento misto, quanti-qualitativo, construído e analisado com base em um marco interdisciplinar no campo da bioética. Os 525 participantes da pesquisa, ocorrida em junho de 2020, compartilharam perspectivas que indicam preocupação com o acesso a informações qualificadas, com a não propagação de *fake news* e com a desconfiança de informações advindas do governo federal, em contraponto à maior confiança em fontes científicas e de governos municipais e estaduais. O conhecimento sobre o modo como os brasileiros se relacionaram com informações a respeito da Covid-19 é fundamental para que medidas preventivas, educativas e regulatórias sejam efetivas na formulação de políticas públicas em saúde em um futuro pós-pandemia.

Palavras-chave: Bioética. Conhecimento. Pesquisa. Saúde global. Sustentabilidade.

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INTRODUCTION

Bioethics uses different interdisciplinary literature and methodologies to address complex, plural, and global ethical conflicts that involve the impact of technological advancement, the expansion of globalization, and the current socio-cultural transformations. In this context, the aim of this study is to identify the vulnerabilities and arguments of those involved by establishing the link between the agents involved; deliberating, guiding, and standardizing in order to support feasible solutions for the resolution of ethical conflicts that affect health, life, and the environment¹.

When faced with bioethical conflicts that are on a global scale such as pandemics, it is apparent that the identification and resolution of ethical conflicts surrounding this field requires a thorough understanding of the historically determined relationships between countries, people, and cultures². Specifically addressing the bioethical analysis of pandemics, Goldim³ questioned the ethical, legal, and social aspects that were related to the global spread of influenza (H1N1) and stated that the issue can be analyzed using four ethical models: a) virtues such as courage, compassion, prudence, justice, gratitude, and love; b) ethical principles such as beneficence or respect for people and justice; c) human rights with individual, collective, and transpersonal guarantees; d) otherness when assuming co-responsibility in justifying preventive actions. However, the author

stated that fear and anxiety, which are typical reactions to pandemics, can only be overcome by guaranteeing that all communication concerning the problem is transparent, truthful, and accessible.

Pandemics are not new in terms of the history of humanity⁴. Although millions of people have become victims to pandemic illnesses over the centuries, epidemiological, institutional, and political learning have not been sufficient in order to contain the Covid -19 pandemic⁵. The magnitude of the worldwide commotion, especially in the scientific context, is expressed by the fact that Google Scholar already records more than 68 thousand publications on the subject, just six months after the start of the pandemic. The Covid -19 pandemic brought unprecedented conflicts, both in science and in the political, economic, and social organization worldwide, mainly due to the closing of borders and the resistance to social distancing as a measure of containment. Although these methods are not new, they caused a unique physical, emotional, social, and economic impact on the current generation⁶.

Brazil has been in an epidemic situation since the virus began spreading in the country, which was two months after the spread in China and other countries that were rapidly devastated by the virus, especially several in Europe⁷. The first case of Covid -19 was registered on February 25, and Brazil is currently second-highest in terms of both the number of infections and deaths, with one of the highest transmission

rates and probably one of the highest rates of underreporting in the world⁸.

In addition to the physical, emotional, social, and economic impacts of the virus, the Brazilian population is facing a serious political crisis in which the leaders, especially the president of the republic, release dissonant information and guidelines, declaring that they are more concerned with the economic growth of the country than with the health issues of the pandemic, downplaying the recommendations from the scientific community and international agencies to deal with the disease^{7,8,9}. The criticality of the Brazilian scenario is further aggravated by strong pressure from the private sectors to open the economy, the problems surrounding social inequality, the predominance of casual and temporary employment, the lack of protection for favelas and indigenous populations, the corruption of public and private agents, and the dismantling of the public health system that has occurred over recent years^{8,9}.

In view of this scenario, analysis of the means, modes, and processing of information about Covid -19 in Brazil from the perspective of bioethics can provide a better understanding of the scenario and help produce preventive, educational, and regulatory measures that are more effective in a post-pandemic future. For this reason, this research proposes the use of a mixed method (quanti-qualitative) as per which the access to information about the pandemic from the perspective of different participants can be analyzed. The objective

was specifically to test the hypothesis that there are differences in the means through which people have received information and developed different perspectives on the pandemic of Covid -19 in Brazil, indicating differences in the understanding of the pandemic according to age, gender, level of education, residential area, and the ownership of animals, as has been confirmed previously by other studies aimed at identifying the ethical perspective of environmental issues^{10,11}. Thus, the present research is aimed at evaluating the perspective of information from Brazilians on the Covid -19 pandemic from the perspective of bioethical literature.

MATERIAL AND METHODS

This study uses a mixed and intersecting strategy that seeks to identify aspects of the experiences of the participants of the study on the information and communication experiences related to the Covid -19 pandemic through an online questionnaire designed especially for this research.

The questionnaire was composed of 11 questions, seven for sample characterization, constituting the research variables (gender, age, place of residence, level of education, ownership of animals, number of people in a household, and whether it is possible for a subject to adhere to social distancing); five questions to assess the level of agreement with an assertions regarding confidence in a source of information ranging from 0 to 10, the

attitudes of the subjects towards information acquisition, the position of the subjects on the origin of the pandemic; the position of the subjects on preventive measures, and expectations for the future. The final question was concerned with identifying vulnerable groups. The questionnaire was assessed via a pre-test and 10 panelists in the areas of Bioethics, Biomedicine, Biochemistry, Nutrition, Psychology, Biology, Philosophy, and Anthropology.

The questionnaire was shared on social networks and discussion groups from different social segments on 11 June 2020 and remained online until 18 June 2020, when the minimum sample required of 370 obtained with sample calculation for populations greater than 1 million inhabitants there is a 95% confidence and an error of 5% (<https://comentto.com/calculadora-amostr/>).

The open questions were analyzed according to the word-frequency statistics used by the Insite Linguistics Group¹². The categorical frequencies were analyzed using the chi-square test, and the mean values were analyzed using the ANOVA and Student's t and Tukey's posterior tests. The null hypothesis of homogeneity in the distribution of values was considered in both situations with a 95% confidence interval and a 5% margin of error ($P<0.05$). The means were compared with the ANOVA test and reported using Tukey's posterior test. Significantly different values ($P<0.05$) were accompanied by different

letters. The means of the variables were also compared and the differences indicated.

In order to comply with ethical principles, the study was conducted in accordance with the Declaration of Helsinki and CNS Resolutions 466/12 and 510/2016 respecting the integrity and anonymity of the participants. The declaration was also followed in the treatment, analysis, and preservation of the data. The project was approved by CEP/PUCPR (through the opinion of number 4,058,513).

RESULTS

The analysis of the perspective of the experiences of the participants on Covid-19 in Brazil included the analysis of 525 questionnaires selected from a total of 750 responses, excluding those that were incomplete. The research was characterized by a heterogeneous group that was formed predominantly of women (74%) (Men: 26%; Others: 0.25 ($\chi^2_{(2)}=119$; $P<0.001$), adults (55.3%) (Youth: 34.8%; Elderly: 9.9%) ($\chi^2_{(1)}=161$; $P<0.001$), residents of Curitiba (63%) ($\chi^2_{(1)}=361$; $P<0.001$) and respondents from other 15 states, predominantly Paraná (33%), Rio Grande do Sul (11.3%), and São Paulo (18%) as well as other countries, such as Mozambique, Portugal, and Canada. Most respondents were in higher education or had already completed higher education (43%) or post-graduate studies (51.5%) ($\chi^2_{(2)}=188$; $P<0.001$), from 61 courses with a predominance of Biology (25%), Psychology (15%), Business Administration (8%), and Law (7%). Most of the respondents were trained in the area

of biological/agrarian sciences (54%) ($\chi^2_{(5)}=359$; $P<0.001$) (Human sciences: 22.3%, Exact sciences; 10%, Business Administration: 9%; Bioethics: 4%). Most respondents either currently own or have owned animals in the past (92.6%) ($\chi^2_{(1)}=379$; $P<0.001$), live with others (89.5%) ($\chi^2_{(1)}=329$; $P<0.001$) (one person: 25.4%, two: 22.7%; three: 25.6%, four: 10.1%, five: 3.4%, six; 1.3%; seven: 0.6%), and fully respected social distancing, leaving home only for essential needs (65.4%) ($\chi^2_{(3)}=468$; $P <0.001$) (Partially respected: 17%; Worked: 12%; Was at the forefront of combating the pandemic: 5.5%).

PERSPECTIVES ON THE RELIABILITY OF THE INFORMATION GIVEN CONCERNING COVID-19

The analysis of the trust attributed to the media indicated that the respondents give greater value to the information disclosed in scientific media. The trust of the participants in municipal and state epidemiological bulletins was significantly greater than that of bulletins issued by the federal government. Among the variables, women trusted the state and municipal bulletins more and young people distrusted the information shared on WhatsApp (Figure 6). Thirty-seven respondents also included other sources of information, such as specialists (43.2%), international agencies (27%), research institutions (8.1%), informal conversation (10.8%), personal perception (8.1%), and historical data (2.7%) (Figure 1).

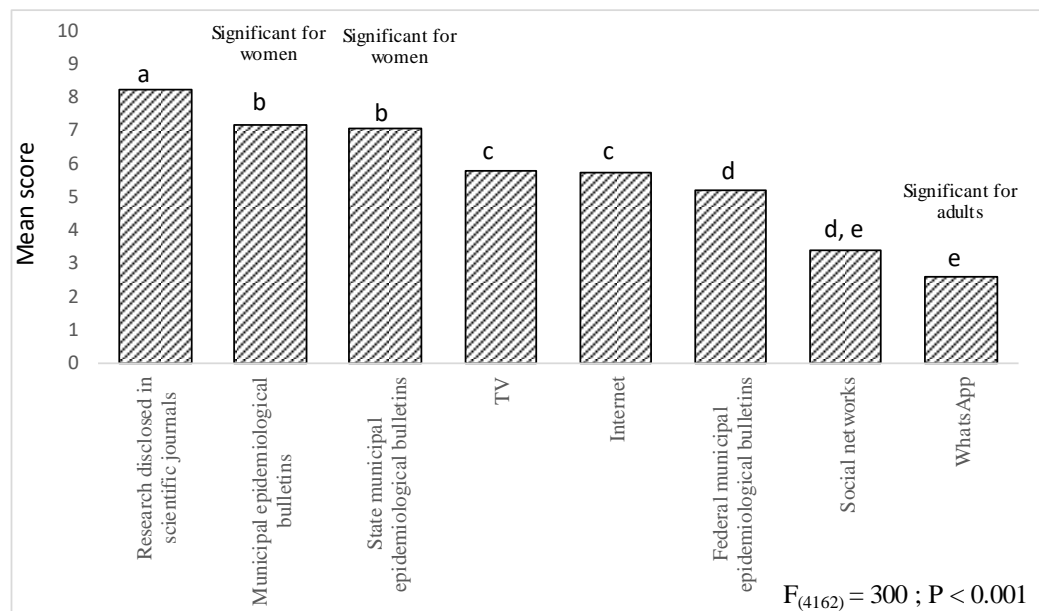


Figure 1. Mean score attributed by respondents to their trust in different sources of media regarding information on Covid -19.

Source: research data

PERSPECTIVES ON PURPOSE AND BEHAVIOR IN THE FACE OF INFORMATION ON COVID-19

Most respondents reported checking the sources of information before sharing, seeking information to update themselves on news about possibilities of treatments and cures and the number of people infected or dying as a result of contracting Covid - 19. However, little association was

established with the behavior of avoiding news due to concerns about whether news may be fake. With regards to the variables, front-line professionals look for information giving guidance to citizens, and residents of Curitiba and animals owners were the least concerned about seeking information about the services available in the city. Women were found more likely to avoid information as a result of anxiety than men (Figure 2).

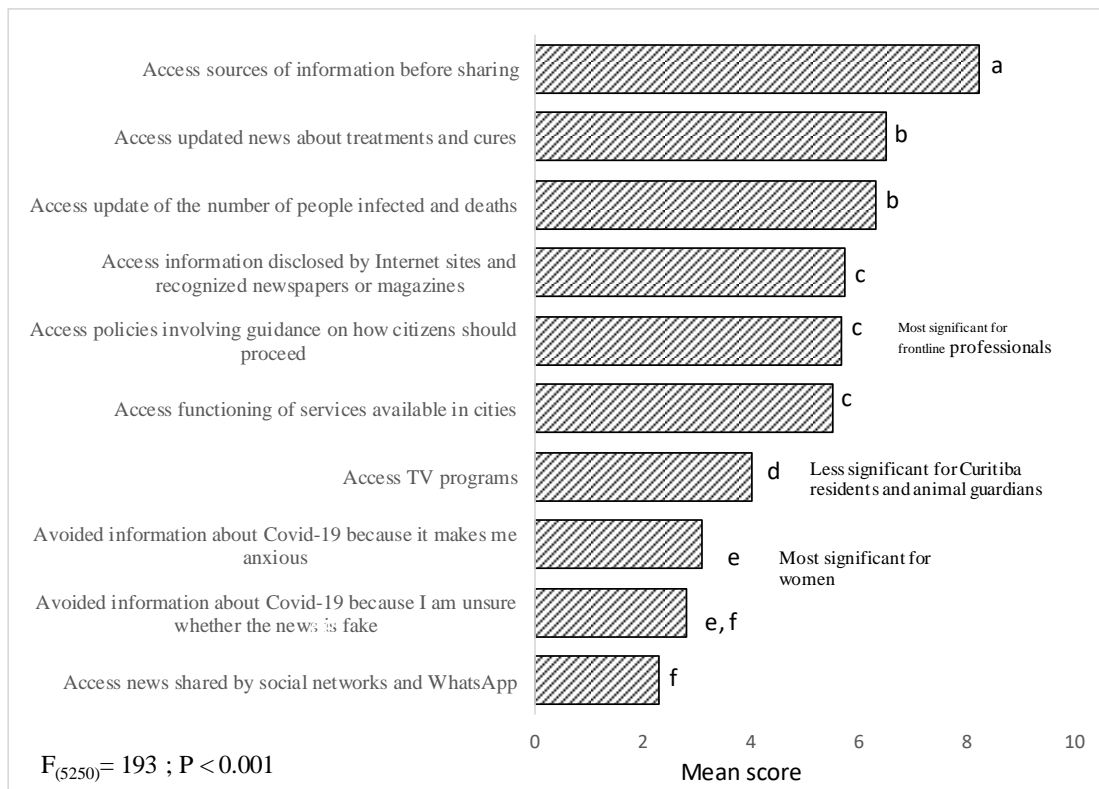


Figure 2. Mean score attributed to respondents in terms of their position regarding information about Covid -19. Source: research data

PERSPECTIVES ON THE CAUSES OF THE EXPANSION OF THE COVID-19 PANDEMIC

Most respondents agreed that Brazil should have adopted international strategies, with social distancing at the

beginning of the problem, lockdown, as a sanitary measure, in the middle, and release after the number of cases decreased. High scores were also directed at a lack of strategy in Brazil and the belief that this situation would initially be restricted to China. Respondents had low adherence to

statements that attributed the cause of the virus for the purposes of political manipulation, including the creation of the virus in a laboratory and the overestimation

of the pandemic, with the highest adherence to the belief that China was guilty for manipulating the data by male respondents (Figure 3).

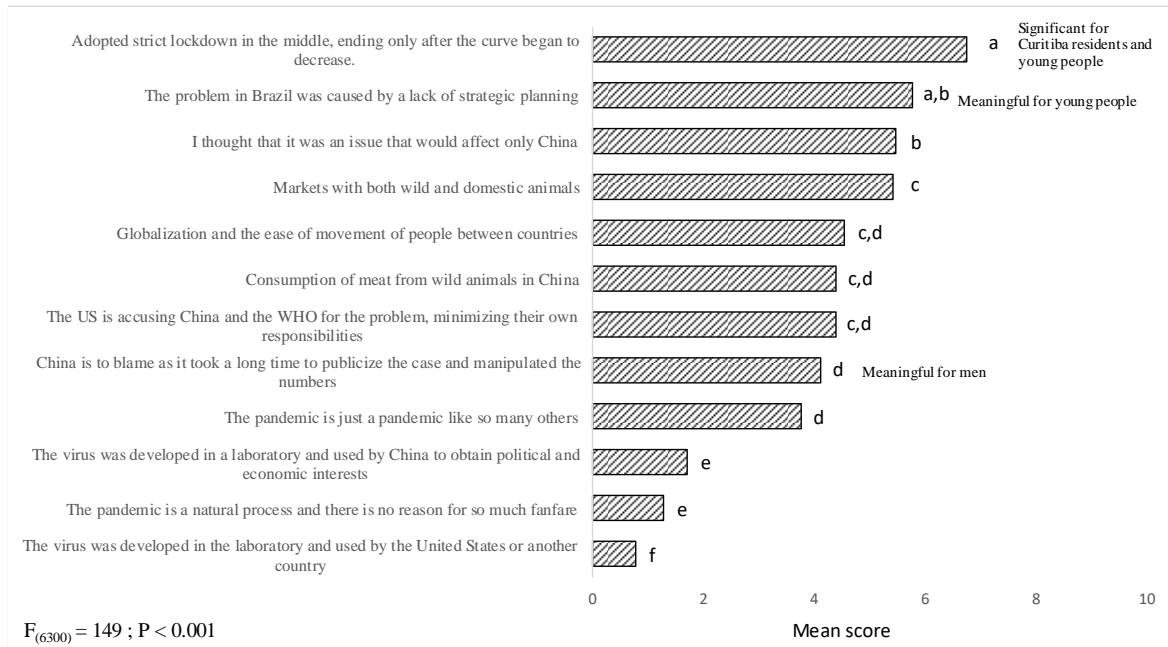


Figure 3. Mean score attributed by respondents regarding knowledge about the causes of the Covid-19 pandemic.

Source: research data

PERSPECTIVES REGARDING CORONAVIRUS CONTAINMENT MEASURES

The position regarding personal containment measures indicated significant agreement in terms of maintaining practices such as washing hands, and cleaning food and packaging as a means of preventing

new and old diseases. Less agreement was attributed to the burden of wearing masks in terms of communication or to the perception that the prohibition of movement and the obligation to use masks violates both the principle of autonomy and human rights, which is more marked in men (Figure 4).

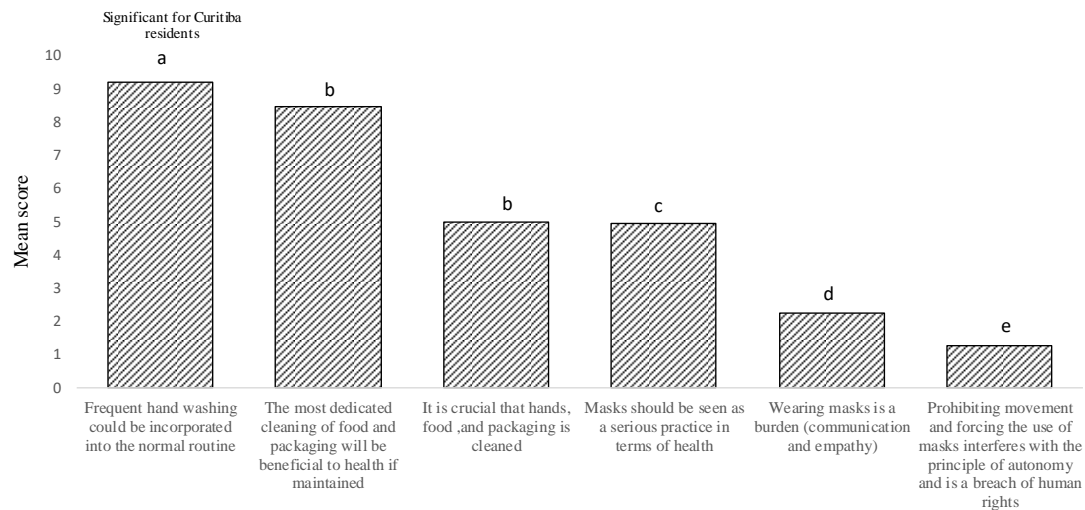


Figure 4. Mean score given by respondents regarding agreement with measures used to contain the spread of the coronavirus.

Source: research data

PROSPECTS FOR THE FUTURE AFTER THE COVID-19 PANDEMIC

With regard to the post-pandemic future, most respondents believe in the consolidation of new technologies as well as that it is morally unacceptable for us to continue in the same path of modernization. This aspect was especially indicated

important by women, coupled with the belief that things will never be the same again. Women also tended to indicate changes in terms of self-care, both as an ethical and political issue. There was also less agreement with the more negative perspectives about the future, including the idea that people will be more distant (Figure 5).

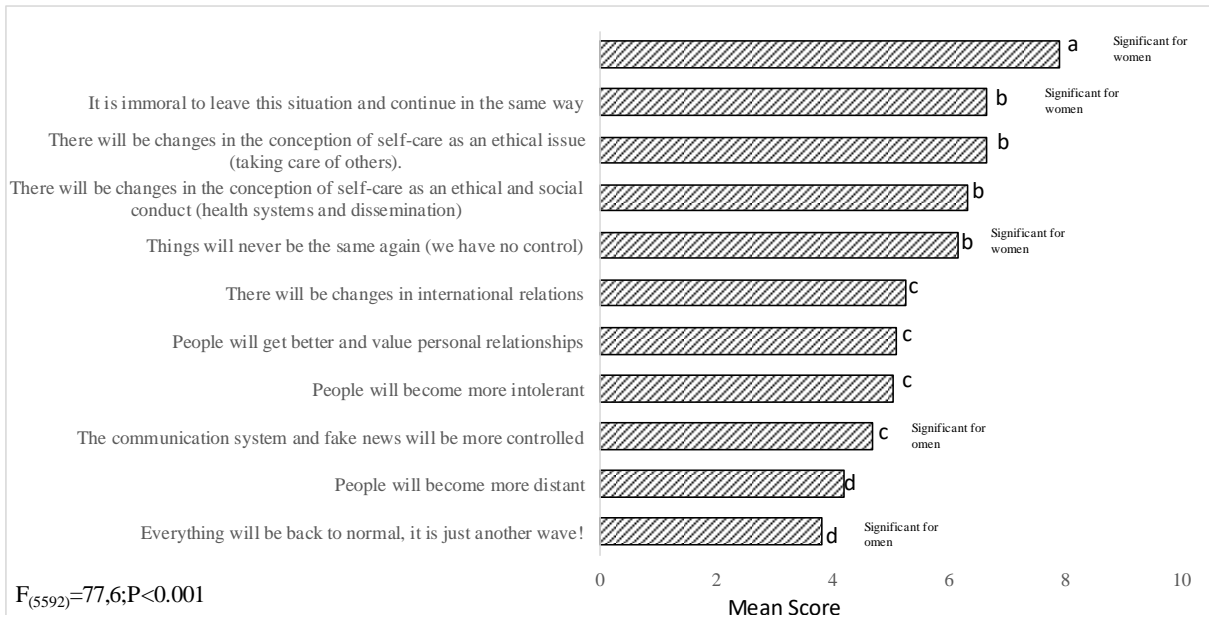


Figure 5. Mean score given by respondents to statements concerning the future after the Covid -19 pandemic.
Source: research data

PERSPECTIVES ON THE VULNERABILITY OF SPECIFIC PEOPLE TO THE COVID-19 PANDEMIC

In the open question, respondents used 234 words to refer to those who are most vulnerable in the context of the Covid -19 pandemic. Out of a total of 1772

participations, the 100 words that were mentioned the most corresponded to 92% of the sample, with the five most frequent being: the elderly (17.4%), homelessness (5.4%), chronically ill patients (4.7%), the poorest (4.1%), and those with comorbidities (3.7%) (Figure 6).

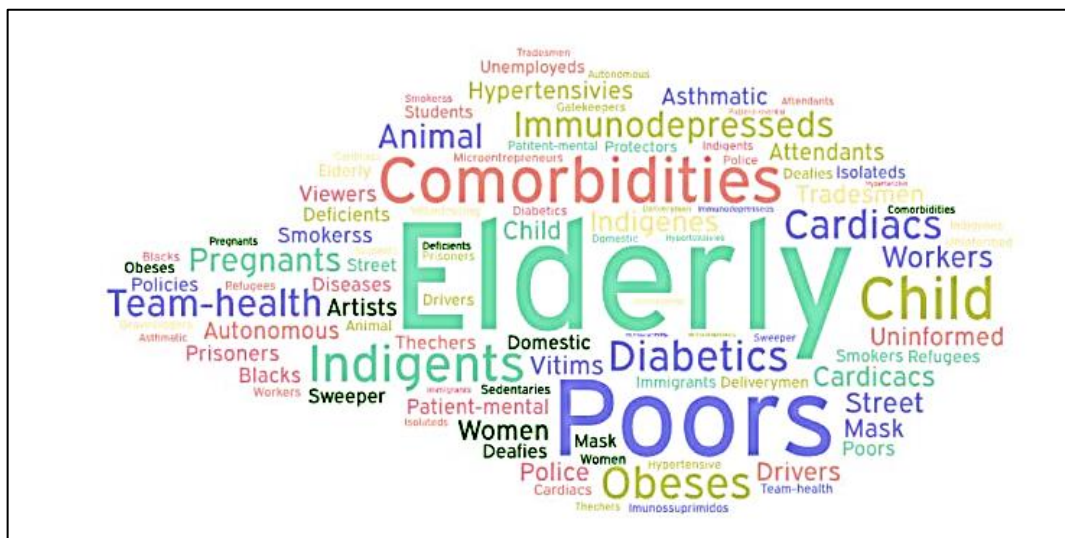


Figure 6. Words associated with the question "who are the most vulnerable to the Covid -19 pandemic."
Source: research data

DISCUSSION

The data and sample analyzed confirmed homogeneity in the responses of participants from different social groups, indicating that Brazilians share common perspectives that arise from the experience of access and the consolidation of information received and reported by different means even during the height of the pandemic in Brazil. The fact that many respondents have higher education, may be a bias about access to social networks and interest in the topic.

The study indicates a scenario of disbelief in social networks and instant messaging applications as compared to the research reported in scientific journals, indicating that the participants believe in science and its processes, even when academia is still discovering the peculiarities of the virus and may disseminate incomplete information in the face of the urgency to generate and share findings¹³. However, participants in this research also indicated that they seek information from popular magazines. This is probably because accessing scientific content directly requires skills, processes, and time that are not available to all citizens, and the information in magazines has already been simplified and decoded for easier access.

The behavior of checking information before sharing is in line with the current attitude for combating fake news that has intensified since the start of the pandemic^{7,14,15,16,17}. Souza-Jr¹⁴ and Penycook

*et al.*¹⁶ stated that one of the factors that leads people to share fake content is associated with the lack of dedication in analyzing content critically. For Cinelli *et al.*¹⁷ the dissemination of information is simplified by the interaction paradigm of social networks, with Penycook *et al.*¹⁶ stating that people with analytical skills and greater scientific knowledge tend to be more critical when sharing information.

An important finding in our research is that when accessing information about Covid-19, participants trust state and municipal epidemiological bulletins, almost to the same level as confidence in scientific recommendations, while indicating a strong distrust of federal bulletins, almost reaching the low level of trust associated with social media. These data may be associated with the political instrumentalization of information about the pandemic in Brazil, as has also occurred in the United States of America, where the president adopted a populist rhetoric that diverged from scientific recommendations and international bodies such as the World Health Organization (WHO). Such positions without a scientific basis and with a strong political polarization agenda have led many people to discredit recommendations that are based on scientific data^{9,8}. This practice has not been identified in other countries such as China. According to Qiu *et al.*¹⁹ the anxiety of the population about the pandemic in China decreased over time as the effectiveness of the control measures and the assertiveness of the actions by the leaders was proven.

According to Souza-Jr¹⁴, the provision of proper information is a necessary tool for awareness and must be accurate, especially in emergencies. However, the fact that information can be distorted by manipulation must also be considered, as is often associated with communication strategies that aim to influence the reader to consume the content for its populist and sensationalist value³⁰. Information about flags (black, purple, red, yellow), curfews, restriction and others, although not exactly lockdown, are under the same umbrella of understanding by common sense. Consequently, health agencies, the press, and academia, in addition to allocating efforts to produce suitable content, need to create strategies to combat fake news, which in addition to political connotation, creates chaos and fear, amplifying the problem¹⁶.

The situation experienced pinpoints weaknesses such as the incipience of digital literacy, the acquisition of the skills necessary to deal with the amount and speed of information provided, and greater control of health information disclosed by the digital environment³⁰. For Hua and Shaw⁷, the dissemination of transparent and scientifically-based information should be part of the global effort agenda, bringing together nations with the WHO to mitigate problems related to the pandemic. However, the world is experiencing a unique moment of discovery in terms of this variant of the coronavirus¹⁶, and its behavior, possibilities of treatments, and cures are still to be discovered. The

immediate spread of scientific findings, which are probably specific to certain aspects, may not be compatible with the diversity found at a global level. Therefore, the integrity that is attributed to a finding should be questioned; this does not necessarily mean that the research was incorrect, it merely suggests that it was not applicable in all situations. With regards to the acceleration of scientific publications on the pandemic, Mello *et al.*¹³ stated that after 100 days of the first outbreak of Covid-19 in China, the world published an average of 18.4 articles per day in order to keep society updated with the results and to support decision-makers in planning actions, services, and the response of health systems. This renders the conflicts and attitudes about how to deal with, learn about, and manage scientific knowledge more complex, especially in the face of new media with wide horizontal dissemination^{7, 14}.

Respondents to this survey stated that they deal with news about the pandemic in a specific way, by looking for updates on possible validated treatments, cures, and the number of people that have been infected or died, which is readily available to the public. Respondents indicated low use of social networks, television, or websites. This may have been due to the characteristics of the subjects taking part in this experiment, which showed a high frequency of people with higher education. Souza-Jr¹⁴ mapped the search for the topic on Google Trends, indicating the greatest interest in active search at the beginning of

the pandemic. Conducting the same search at the time of writing this manuscript (late June) illustrates a drop in research associated with Covid -19, pandemic, deaths, and social distancing and an ascendancy in research for symptoms and mental health.

Although Brazil has been under restrictive measures for three months, it is probably now experiencing the peak in the curve of the first wave, with the highest risks of contamination. This scenario corresponds to most of the respondents who agree that Brazil did not have a good strategy, that it should have carried out social distancing earlier, enforced a lockdown, as a more restrictive health measure in terms of social mobility, before the disease spread and began opening again only after the number of infections started to fall. Oliveira *et al.*²⁰ considered that adopting the best strategy is a great challenge, as precocity can lead to the risk of increasing economic and social losses, in addition to not being effective to the health system and causing fatigue and the loss of cohesion, just as Brazil is experiencing the reopening of the economy and resuming activities at the most critical moment of the pandemic. The excess of information, mainly with alarmist or doubtful content, was not considered by the participants of this research as an inhibitory factor in accessing information, except for the women who indicated that they avoided it due to a highly emotional and anxious response, corroborating Souza-Jr¹⁴ and Ornell *et al.*²¹ who state that fake news

concerning health has the power to instill fear and anxiety in the general population.

The origin of the current pandemic was not clearly identified by the participants, with low agreement on both the consumption of wild animals and the possible intentional manipulation of the virus and information for political purposes. Knowing the causes is fundamental, mainly for identifying the position regarding the prevention of other similar situations. This information was transmitted at the beginning of the pandemic and lost its importance in the scenario of deaths and restrictive control measures.

Understanding the causes of the pandemic presumes adherence to preventive measures and transposing personal care to community care. Respondents in this research mentioned the importance of maintaining hygiene and hygiene measures as part of a general routine even after the pandemic, as it also prevents numerous other diseases. According to Oliveira *et al.*²⁰, a radical change in behavior is expected at both the individual and collective level that involves common sense and solidarity, which is commonly related to oriental cultures and is considered by Medeiros *et al.*²² as responsible for the lower contamination in Asian countries as they naturally maintain social distancing and promote behaviors that are aimed at the prevention of respiratory diseases²³. The mandatory use of masks has been controversial despite indications that they are effective for containing contagion. This controversy is

mainly associated with detachment, but according to Dalton *et al.*²³, masks have a limited role in the community before widespread transmission and their use should be encouraged as long as they are not diverted from health professionals. Although many people have shown resistance to the use of a mask, the respondents did not understand the obligation as a violation of individual rights and autonomy, nor did they relate to a hindrance to interaction due to limitations in non-verbal and verbal communication or making breathing difficult. However, they considered on a larger scale the importance of being taken seriously, even opening space for creativity, as there are technical recommendations on how to use masks⁴⁰ which may increase the risks if not met. As with any prevention procedure, wearing a mask must be performed with sensitivity so as not to stimulate obsession or panic.

Respondents in this study were relatively optimistic about the post-pandemic future, mentioning changes in the use of technology and in the concept of self-care, in addition to personal benefits that extend to interconnection with the environment and society and the realization that "things will not be the same as before". At the same time, they do not believe that people will become more distant or intolerant but do believe that there will be a focus on combating fake news. This optimistic interpretation, which is almost naïve in some ways, may be due to the respondents experiencing the problem at its height and projecting a future that they hope

is better than the present. As a means of elaborating feelings and perspectives on the present, participants reported anguish, with a prevalence of words associated with the fear of death, loneliness, and concern. Oliveira *et al.*²⁰ predicted, in the same way, a better future with more empathy and solidarity, new habits and values that will drive social development, and sustainable and equitable economic growth.

According to Jones⁴, pandemics are of interest to historians because they delineate universal experiences of how a given population reacts to contagious diseases, revealing what people value and showing the latent structures within a society. According to the author, all the situations experienced as a result of Covid-19 have already occurred; China as the initial focus for the spread of the disease, self-guarantee as the main focus of the initial measures, and the prevalence of economic interests and denial until the deaths became evident; this is followed by a situation in which moral and technical explanations are required, responsibility is assigned, and the promotion of social divisions occurs. Consequently, the situation experienced exposes a moment of confluence between a virus with a high potential for dissemination and lethality with a situation of agglomeration in urban areas, the regular movement of people and products due to globalization, vulnerable citizens with underlying health conditions that result from malnutrition, and a high burden of stress, disease, and inequality.

For Aveni⁴ it is necessary to look for ways to avoid impacting the population via quick and effective responses to crisis solutions, mainly through ethical education in which each citizen understands health as a public good and is responsible for both himself and other people. However, Garrafa *et al.* (2020)²⁵ warned that when planning teaching programs for global ethics, one should consider and include theoretical and cultural differences in a dialogical relationship between authors, proponents, organizers, teachers, and students²⁶.

Respondents in the study identified that those most vulnerable to Covid-19 were individuals widely mentioned by the media, such as the elderly, chronically ill, people with comorbidities, the poor, and homeless people. Vulnerability in bioethics is understood beyond biological and social conditions, including an understanding of the moral²⁷ and normative dimensions, where it is identified as an ethical guiding principle for the identification of conflicts and the prescription of policies, norms, and procedures for their resolution²⁸. Biological vulnerability concerns the conditions of corporeality and health and disease that affect different groups, such as the elderly and children or people with chronic or infectious diseases compared to people who are not affected by these conditions. The responses of the participants regarding vulnerability corroborated the clinical and epidemiological studies that are available so far about the greater risk to these groups²⁹.

On the other hand, social vulnerability also includes the conditions of

daily life, determined by the mode of political and economic organization, such as the presence of the poor, in the context of social inequality. These people live in geographical spaces with their private elementary human rights without access to health care and in territories in which violence is endemic, characterizing the perception of the research participants. As for the first group, there is strong evidence, both in Brazil⁹ and abroad³⁰, that people living on the outskirts, and especially people of color in the case of these two countries, are more susceptible to death as a result of contracting Covid-19, either because of insufficient housing, the lack of conditions for maintaining social isolation, the presence of comorbidities, or the lack of access to quality health care. On the other hand, there is still no solid evidence concerning the greater risk of contagion to the homeless. However, the adverse social conditions suffered by these people mean that, they are more likely to experience aggravation as a result of the disease and death due to difficulties in accessing adequate health care.

This scenario, in which social inequalities potentially maximize both the spread and the severity and lethality of the disease, is embraced by bioethics and its principlalist^{3,34}, social^{25,26,35,36,37} and environmental perspectives³⁸. In the medical context, the bioethical perspective supports the deliberation of conflicting decisions such as access to medical care²⁷ and in the environmental context, decisions aimed at the sustainable use of natural

resources. However, it is precisely in the social context that the Universal Declaration on Bioethics and Human Rights³⁹, especially in its articles 10 and 14, imputes to social issues on the agenda of its agenda, indicating that all human beings in terms of dignity and rights are accepted in a fair, equitable and collective manner.

FINAL CONSIDERATIONS

This research assessed the Brazilians perspectives regarding the experiences related to the access to information about Covid-19 during the critical period of the pandemic in Brazil. The results of the 525 participants indicate homogeneity among the research variables, as well as the education of the participants, showing concerns about the access to qualified information, the non-propagation of fake news, and a significant distrust in the epidemiological information supplied by the federal government, in contrast to greater confidence in state and municipal epidemiological bulletins and scientific information.

Although the understanding of the causes of the epidemic was not particularly homogeneous, the participants in this study demonstrated adherence to the correct measures to control the spread of the virus and the ability to identify those groups that are most vulnerable to the disease. The participants of this study are particularly well-informed compared to the general population, as many of them have completed higher education. For this

reason, the generalization of the results of this study must be put into perspective. Even so, this study allows the identification of perspectives from experiences that were reported even during the height of the pandemic in Brazil that can be useful to elucidate the ethical conflicts experienced by the population in this period, outline actions of interventions in public health and education, and provide information to mitigate possible social consequences in the post-pandemic future.

Transparent, suitable, complete, and accessible information is necessary to guide the population in order to reduce anxiety and insecurity. Knowing the causes of the expansion of the pandemic, the correct measures to cope with the disease, and the groups that are most vulnerable to the disease allowed participants to develop better perspectives on the post-pandemic future. Moreover, knowing how people reacted to information about the pandemic during the spread of the disease in the country can contribute with lessons to prevent more critical effects in future pandemics, which are highly likely to occur in the face of the way humanity is relating to nature, the globalization process, and the increase in economic and social inequalities around the world.

The data used in this research can be especially useful for strengthening interdisciplinary health research with those of bioethics, which should support the mitigation of the effects of the pandemic and encourage, promote, and standardize preventive interventions for potential new

events resulting from the current or other eventual pandemics.

We highlight the transposition of the clinical perspective of bioethics to the environmental and social context in synergy with the Universal Declaration of Bioethics and Human Rights³⁹, which subsidizes collective decisions in favor of a favorable environment for the quality of life of all citizens and other living beings, of this and future generations, who share the planetary existence.

The concern surrounding the manner by which people individually access and process information during the pandemic must be accompanied by a broader concern with the economic, social, and cultural processes that accompany the individual reaction. From this perspective, bioethics is responsible for initiating paradigms of a more harmonious and sustainable relationship between society and nature, aiming at the formation of a society which, in addition to being well informed, can exercise autonomy, self-care, and solidarity at all times, but, above all, in the context of a serious health crisis such as that of the current pandemic.

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CONTRIBUTORS

All authors participated in the conception, design of the study, in addition

to the analysis and interpretation of data, as well as the writing of the article and its critical review.

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