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Patient autonomy regarding the COVID-19 vaccine

Gustavo Batista Ferro [1], *Carlos Arthur da Silva Morais* [1], *Erick Antonio Rodrigues Mendes* [1], *Francinei Gomes Pinto* [1], *Patrícia Regina Bastos Neder* [1]

1. Universidade do Estado do Pará, Belém/PA, Brasil.

Abstract

Amidst the serious public health crises caused by the COVID-19 pandemic, vaccination became a key measure to combat the disease; however, vaccination refusal or hesitancy hinders the efforts to reach collective immunity. Such refusal is a right arising from patient autonomy and can be influenced by political factors, trust in governments, skepticism towards the pharmaceutical industry, and media exposure. Thus, knowledge of these aspects added to public health efforts is paramount to mitigate refusal and promote vaccination acceptance.

Keywords: Personal autonomy. Vaccination refusal. COVID-19 vaccines.

Resumo

Autonomia do paciente ante a vacinação contra covid-19

A pandemia de covid-19 causou uma grave crise de saúde pública e a vacinação se tornou uma importante ação para o enfrentamento da doença. Entretanto, a hesitação vacinal representa uma barreira no esforço para alcançar a imunidade coletiva. Deve-se considerar que tal recusa é um direito decorrente da autonomia do paciente e pode ser influenciada por fatores como política, confiança nos governantes, ceticismo em relação à indústria farmacêutica e exposição midiática, no contexto da pandemia. Diante disso, conhecer tais aspectos faz-se necessário a fim de minimizar esse problema e promover maior aceitação da vacina, por meio de amplos esforços das autoridades de saúde pública.

Palavras-chave: Autonomia pessoal. Recusa de vacinação. Vacinas contra covid-19.

Resumen

Autonomía del paciente ante la vacunación contra la covid-19

La pandemia de la covid-19 causó una grave crisis de salud pública, y la vacunación es una acción importante para enfrentar la enfermedad. Sin embargo, la vacilación ante la vacuna representa una barrera en el esfuerzo por lograr la inmunidad colectiva. Se puede considerar que esta negativa es un derecho que surge de la autonomía del paciente y que puede estar influenciada por los factores como la política, la confianza en los gobernantes, el escepticismo hacia la industria farmacéutica y la exposición a los medios en el contexto de la pandemia. Por lo tanto, conocer estos aspectos es necesario para minimizar el problema y promover una mayor aceptación de la vacuna mediante un gran esfuerzo por parte de las autoridades de salud pública.

Palabras clave: Autonomía personal. Negativa a la vacunación. Vacunas contra la covid-19.

Research

The authors declare no conflict of interest.

In December 2019, in the Chinese province of Wuhan, an acute respiratory syndrome was detected, which was caused by Sars-CoV-2, a pathogen belonging to the coronavirus family. This virus has become the causative agent of COVID-19 (coronavirus disease), an infectious disease with a high rate of spread. Three months after its identification, the World Health Organization classified the health emergency caused by the disease as a pandemic [1].

The unexpected onset of a pandemic situation had broad and complex repercussions, affecting political, economic, and social patterns, with a high number of deaths, mainly of older adults and people with chronic pathological conditions—who were characterized as risk groups [1,2]. Consequently, the scientific community, in partnership with the States and the private sector, initiated an unprecedented effort to develop vaccines in order to minimize the impacts of the pandemic, considering that they generate immunity against the target microorganism by activating the immune system [2,3].

Every patient may, if so desired, refuse medical treatment. This is a precept that defends the dignity of the person, prioritizing the freedom of decision-making, regardless of the beliefs that motivate it [4]. In the health care setting, any intervention, even if minimal, must be informed to the patient by the physician or professional in charge, with this obligation being inherent to their function. Possible effects and doubts should also be clarified, aiming to give the patient the necessary conditions to consent or refuse [5].

This right is reinforced from the ethical and legal perspective. In bioethics, freedom is characterized by the ability to exercise autonomy through one's own decision, even if it requires the physician to abstain. The 1964 *Declaration of Helsinki*, which guides research involving human beings, mentions that the interests and well-being of the individual are above the exclusive interest of society or science [6].

Furthermore, it is understood that the patient has the final say on which interventions can or cannot be performed, since this consists in the intrinsic freedom of the person (free will) to decide on issues involving their intimacy and privacy, based on their life project [7].

Issues related to patient autonomy deepened during the COVID-19 pandemic, precisely because of the bioethical aspects related to vaccination [8]. In this context, despite several arguments that prove the beneficial effects of the vaccine, there are people who hesitate to get vaccinated.

The reasons that determine this hesitancy are complex and range from lack of confidence and information about the vaccine, to difficulties in access to it, and distrust in formulators of the surrounding policies. There are also claims of religious motives and discourses that the vaccine would be a populational control measure taken by the government or large companies [9].

Autonomy in relation to vaccination allows hesitant individuals to compose a heterogeneous group, with different levels of uncertainty about specific vaccines or vaccination in general. This is a very complex social phenomenon, which concerns a collective ideal, of a group that poses questions on subjects such as individual freedom and patient autonomy in health care decisions [10].

From this perspective, thousands of people took to the streets around the world to protest against the social distancing and mass vaccination policies. This reaction is concerning, since public attitudes towards vaccine safety and efficacy are associated with a reduction in the acceptance of vaccination in the social body [11]. Thus, because this is a disease control method that depends on populational reach for its effectiveness, vaccination is seriously impaired if the necessary outreach is not obtained [12].

Accordingly, the present study aims to learn about the bioethical dilemmas and obstacles involved in the hesitancy about the COVID-19 vaccine.

Method

This is an analytical, exploratory and descriptive study, carried out through an integrative literature review, following the guidelines proposed by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (Prisma) method [13,14], with the objective of grouping and synthesizing relevant knowledge on the proposed theme. It was organized into six phases: 1) naming the topic

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and guiding question; 2) formulation of search criteria; 3) establishment of data to be extracted from publications; 4) critical appreciation of the included articles; 5) presentation of results; and 6) presentation of knowledge in summary.

Thus, we sought to answer the following guiding question: what are the bioethical dilemmas involved in the hesitancy about COVID-19 vaccination? Data collection took place between April and June 2022, and research covered studies from 2020 to 2022 pertinent to the theme. An online search was carried out in the PubMed and Virtual Health Library (VHL) databases, platforms chosen for containing national and international articles.

In the bibliographic survey, the following Boolean descriptors and operators were used: "*COVID-19* and *vaccines* and *vaccine uptake* and *vaccine hesitancy* and *vaccine confidence* and *COVID-19 vaccine*." These descriptors are part of the Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH) platforms. The search strategies were conducted by four independent researchers.

The selected works were analyzed through full critical reading, seeking to detect and associate the text to the proposed theme. The data were interpreted, categorized and stored in Microsoft's Excel 2016 and Word 2016 software, through which they were organized into graphs, tables and texts.

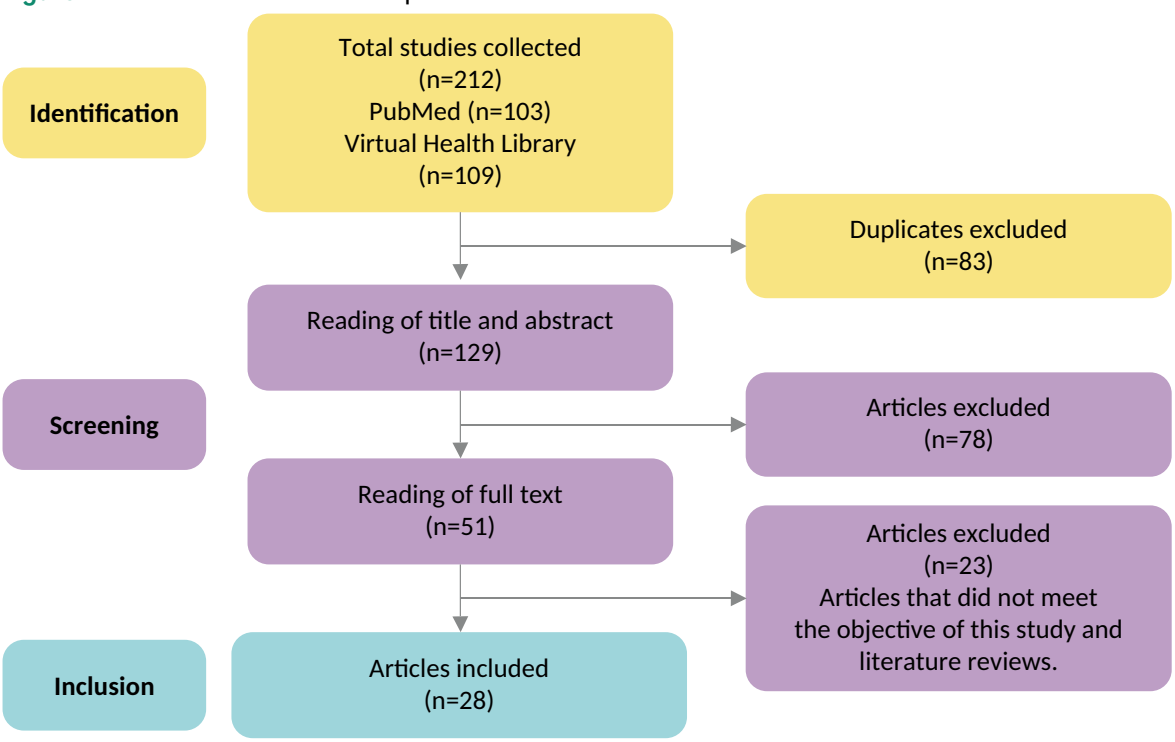
The inclusion criteria for the publications were: presenting expressions associated with the theme in titles, keywords or abstracts; being published in Portuguese and/or English; being available free of charge in the chosen databases. The exclusion criteria were: articles having only the abstract available, consisting in proposal/project without validation, and/or not meeting the proposed object. Publications that appeared in more than one database were computed only once.

Results

Identification and selection of studies

The initial search on the research platforms retrieved 212 publications based on the title, 103 articles found in PubMed and 109 in VHL. Of these, 83 were excluded because they were duplicates and 101 because they were not related to the topic of interest (based on the title, abstract, and reading of the full text). Thus, 28 studies were selected to compose this review (Figure 1).

Figure 1. Flowchart of the selection process for included articles



Research

Characteristics of the included studies

The publications included in this review were summarized in Chart 1, according to the first author and year of publication, country, title, journal, objective, and main results of interest. All articles were published in English and most of them were cross-sectional studies (24); the others were descriptive studies, randomized controlled studies, and reports studies (4).

Chart 1. Articles according to author, year and place of publication, study characteristics, and main results

Author, year, country, and journal	Design and population	Objective	Main results
Altulahi and collaborators; 2021 [15] Saudi Arabia *BMC Family Practice*	Cross-sectional study 8,056 participants	Evaluate the willingness, beliefs, and barriers of individuals in Saudi Arabia in relation to the COVID-19 vaccine and their adherence to preventive measures during and after the pandemic.	Publicly providing information on vaccine safety and implementing health education programs is crucial to increasing public confidence in the vaccine.
Kuciel and collaborators; 2022 [16] Poland *International Journal of Women's Health*	Cross-sectional study 118 participants	Define the COVID-19 vaccine uptake in a sample of pregnant and lactating women in Poland.	Women who are pregnant and/or breastfeeding, older, and with higher education are more likely to vaccinate their children. Mothers with more than two children trust less on government health information.
Leach and collaborators; 2022 [17] Senegal, Uganda and Sierra Leone *Social Science & Medicine*	Descriptive study Not applicable	Approach the anxieties of local public in African settings about COVID-19 vaccines from a point of view that addresses these broader bodily, social, and political dimensions.	It emphasizes the importance of understanding and communication on the part of health authorities, based on respectful dialogue with community members.
Kerr and collaborators; 2021 [18], 2021 United Kingdom *Vaccines*	Cross-sectional study 4,997 participants	Check the influence of information specifically directed to beliefs about vaccine efficacy or concerns on COVID-19 vaccination intent.	Reading detailed information about the risks and benefits of vaccination, the vaccine approval process, or how vaccines induce immunity had no significant impact on vaccination intent.
Njoga and collaborators; 2022 [19] Nigeria *Vaccines*	Cross-sectional multisectoral study 1,525 participants	Find the factors associated with hesitancy as to vaccination against COVID-19 among Nigerian health care professionals, academics, and higher education students and determine their opinions and beliefs about vaccination.	Bad feelings about vaccines occur due to negative reports/rumors on social media. They believe vaccines may not be safe due to their hasty production and/or release.
Kaida and collaborators; 2022 [20] Canada *AIDS and Behavior*	Cross-sectional study 5,588 participants	Determine the prevalence of COVID-19 vaccine intent by HIV *status* and evaluate sociodemographic factors, vaccine hesitancy, and psychological predictors of vaccine intent among individuals aged 25 to 69 years.	The intention to get vaccinated was significantly lower among people living with HIV compared to participants who did not live with HIV. People living with HIV are strongly influenced by direct and indirect social norms to get vaccinated.

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Chart 1. Continuation

Author, year, country, and journal	Design and population	Objective	Main results
Li and collaborators; 2021 [21] China *Human Vaccines & Immunotherapeutics*	Cross-sectional study 2,196 participants	Report vaccine hesitancy and analyze factors related to COVID-19 vaccination among medical students in China in order to provide suggestions for increasing vaccine uptake.	Being in low-risk areas and not needing to get vaccinated, fear of the severe consequences of vaccination, being in good health and not needing to be vaccinated, being concerned about short-term side effects, and worrying about vaccine ineffectiveness were the factors that presented the highest prevalence for vaccine hesitancy.
Roberts and collaborators; 2021 [22] United Kingdom *Frontiers in Public Health*	Cross-sectional study 4,535 participants	Understand how individuals living in the UK made decisions about their intentions to accept or refuse vaccination at the start of the UK's national COVID-19 vaccination program.	Key indicators influencing vaccine uptake include past behaviors, transparency of the scientific process of vaccine development, distrust of science and individual leaderships and political opinions.
Halbrook and collaborators; 2022 [23] United States *Clinical Infectious Diseases*	Cross-sectional study 1,967 participants	Understand behaviors and thoughts about the COVID-19 vaccine among frontline workers and public opinion about the vaccine.	Behaviors toward vaccine uptake increased during the study period, likely as a result of increased public confidence in COVID-19 vaccines, targeted communications, a winter outbreak of COVID-19 in Los Angeles County, and ease of access to employer-sponsored vaccine distribution.
Dubov and collaborators; 2021 [24] United States *Vaccines*	Cross-sectional study 2,491 participants	Assess the *status* and behaviors toward COVID-19 vaccination of health care workers in two major hospital systems in Southern California.	Political affiliation, education, and income were significant factors associated with vaccination status. Health professionals who had not yet received the COVID-19 vaccine probably belonged to one of four categories: misinformed, indecisive, uninformed, or unconcerned.
Sharma, Davis, Wilkerson; 2021 [25] United States *International Journal of Environment and Research and Public Health*	Cross-sectional study 282 participants	Explain the correlates of COVID-19 vaccine acceptance among university students who reported hesitancy regarding vaccination and those who did not use the initiation component of the multi-theoretical model of health behavior change.	Young university students with a political affiliation to the Republican Party are more hesitant to receive the COVID-19 vaccine. There is a low professional recommendation for vaccination.
Bokemper and collaborators; 2021 [26] United States *Vaccine*	Randomized controlled trial 5,014 participants	Understand the politicization of vaccines against COVID-19.	Public confidence in a COVID-19 vaccine is significantly affected by the political context of vaccine approval.
Carson and collaborators; 2021 [27] United States *JAMA Network Open*	Descriptive study 70 participants	Examine the factors that members of multi-ethnic communities at high risk of COVID-19 infection and morbidity report as contributing to vaccine decision-making.	Factors for decision-making about vaccines include fear of politicization or of the pharmaceutical industry, and social and group influences such as inadequate exposure to reliable messengers or information, altruistic motivations, and medical distrust.

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Chart 1. Continuation

Author, year, country, and journal	Design and population	Objective	Main results
Dinga, Sinda, Titanji; 2021 [28] Cameroon *Vaccines*	Cross-sectional study 2,512 participants	Evaluate the factors influencing vaccine hesitancy among Cameroonians.	Factors such as the media and press, perception of the pharmaceutical industry, reliability in the source of the vaccine, and possible cost were raised as factors influencing vaccine hesitancy.
Al Janabi, Chinsky, Pino; 2021 [29] United States *International Journal of Osteopathic Medicine*	Cross-sectional study 197 participants	Measure the perception of students at the New York Institute of Technology College of Osteopathic Medicine (NYITCOM) about a new COVID-19 vaccine and the factors that motivate their opinions.	Confidence in the national health care system and pharmaceutical industry, the minimum level of effectiveness of the Food and Drug Administration, adequate vaccine testing, additional dose of vaccine, and knowledge about antivaccines were significant predictors of the intended vaccine uptake.
McElfish and collaborators; 2021 [30] United States *Journal of Primary Care & Community Health*	Cross-sectional study 754 participants	Examine associations between sociodemographic factors and COVID-19 vaccine hesitancy, fear of infection, and self-efficacy of protection.	Overall confidence in vaccines differs significantly between age, sex, race and education.
Lataifeh and collaborators; 2022 [31] Jordan *Vaccines*	Cross-sectional study 364 participants	Investigate the knowledge, attitudes and perceptions of Jordanian health care professionals about the COVID-19 vaccine in the period from February to March 2021.	The most common reasons for vaccine hesitancy include lack of confidence, inadequate knowledge, and disbelief in its effectiveness. Hesitancy is low among Jordanian health care professionals, with discrepancies between nurses and physicians.
Trabucco Aurilio and collaborators; 2021 [32] Italy *Vaccines*	Cross-sectional study 531 participants	Obtain data on the uptake of vaccination against COVID-19 in order to plan specific interventions to increase the rate of vaccination coverage.	Among nurses, 91.5% intended to accept vaccination, while 2.3% opposed it and 6.2% were undecided. Female sex and confidence in vaccine efficacy represent the main predictors of vaccination.
Musa and collaborators; 2021 [33] Qatar *Vaccines*	Retrospective cross-sectional study 4,023 participants	Determine the rate of vaccine hesitancy of parents, subgroups, and influencing factors related to the BNT162b2 vaccine against COVID-19 in Qatar.	The main reasons for the hesitancy to allow their children to receive the COVID-19 vaccine include a lack of sufficient scientific studies, concern for safety and side effects, potential vaccine ineffectiveness due to mutations, and low professional recommendation.
Boccalini and collaborators; 2020 [34] Italy *Vaccines*	Cross-sectional study 52,000 participants	Present the structure of the VaccinarSinToscana website and analyze the three-year activity of the website and related social network account on Facebook in terms of dissemination and visibility.	Experience with the VaccinarSinToscana website has shown that institutional websites and social networks with evidence-based information can be useful tools for users and health care professionals seeking to enable the population to make informed decisions about immunization.
Khaled and collaborators; 2021 [35] Qatar *Vaccines*	Cross-sectional study 1,912 participants	Estimate the prevalence and identify potential determinants of vaccine intent in the country.	Female gender, Arab ethnicity, migrant *status*/type, and concerns about vaccine side effects were associated with hesitancy and resistance. COVID-19-related bereavement, infection, and quarantine *status* were not significantly associated with any intent groups

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Chart 1. Continuation

Author, year, country, and journal	Design and population	Objective	Main results
Hossain and collaborators; 2021 [36] Bangladesh *Frontiers in Public Health*	Cross-sectional study 1,497 participants	Determine the prevalence and investigate the myriad of psychological determinants of hesitancy regarding the COVID-19 vaccine among the adult population of Bangladesh.	Level of knowledge related to COVID-19, vaccination process, level of preventive practices, subjective norm, perceived behavioral control, and early regret are factors that have the greatest predictive power.
Bechini and collaborators; 2021 [37] Italy *Vaccines*	Cross-sectional study 135 participants	Investigate perceptions and attitudes of the general population regarding the vaccine production process prior to the availability of COVID-19 vaccines.	Possible conflicts of interest between companies and control systems, in addition to the essentiality of informing some aspects of the vaccine production process.
Allen and collaborators; 2021 [38] United States *Preventive Medicine Reports*	Cross-sectional study 1,219 participants	Assess factors associated with hesitancy to be vaccinated.	Educational messages should emphasize the rigorous and ethical process by which vaccines have been developed and tested.
Rozek and collaborators; 2021 [39] United States *International Journal of Public Health*	Cross-sectional study 17,608 participants	Investigate the relation between trust in scientists and medical professionals and perceptions of vaccine safety and efficacy.	The important role of trust in health care professionals and scientists in reducing hesitancy about the COVID-19 vaccine.
Ignacio and collaborators; 2022 [40] United States *Journal of Behavioral Medicine*	Report study 153 participants	Describe the results of 34 virtually conducted focus groups and responses from supplementary surveys conducted with 153 members of the African American/ Black, American Indian/ Alaska Native, and Hispanic/ Latinx and native communities across the state of Arizona to understand the factors associated with hesitancy and confidence regarding the COVID-19 vaccine.	Past experiences of research abuses and group-specific factors influence vaccine hesitancy. Brief accounts about vaccination from local authorities, community members, and religious leaders influence trust in science and vaccines and foster uptake.
Kalam and collaborators; 2021 [41] Bangladesh *PLoS One*	Cross-sectional study 90 participants	Explore the behavioral determinants of COVID-19 vaccine uptake and provide recommendations to increase COVID-19 vaccines uptake in Bangladesh.	Factors influencing vaccine uptake include perceived social norms, perceived safety and confidence in COVID-19 vaccines, perceived susceptibility, perceived self-efficacy, perceived positive and negative consequences, perceived action efficacy, COVID-19 severity, access, and perceived divine will.
Davis and collaborators; 2021 [42] China *Vaccines*	Cross-sectional study 677 participants	Report the trend of responses on COVID-19 vaccine uptake between two waves of the local epidemic and examine the differences between occupations.	Participants had doubts about the vaccine's effectiveness, believed it was unnecessary, and indicated a lack of time or concern about the safety or side effects of vaccination, especially office, service, sales, and older staff.

The United States was the country with the most articles, a total of ten; followed by Italy, with three; the United Kingdom, Bangladesh, Qatar and China, with two publications each; and the other countries, with only one each. All included studies are recent, having been published in 2021 and 2022. The sample of cross-sectional studies ranged from 70 to 52 thousand participants.

Discussion

In modern times, a basic principle in health care services is patient autonomy, especially with regard to combating impositions of medical care without their proclaimed and participated consent [15]. However, there are certain exceptions that allow questioning this right, such as public health issues. From this perspective, when a person's medical condition poses a threat to the community, it is debatable whether, under certain circumstances and within certain parameters, there should be imposition of medical care on the individual [16].

In public health services, individual autonomy falls under the principle of responsibility, because its application, as it occurs in the field of biomedical research or in clinical practice, would result in intense difficulties for any type of interventionist action [17]. This does not mean that autonomy loses space in the public health setting, but that it has a different and smaller role. Thus, a pandemic implies clear and important risks to the community, such that individual autonomy inevitably requires certain limitations [18].

The most obvious manifestation associated with vaccination is the well-known group immunity, that is, the notion that immunity of part of the population reduces the risk of diseases for the other part. By preventing the spread of infection, the vaccine benefits not only the vaccinated individual, but also the surrounding social body, providing aggregate social benefit [19-21].

Currently, the COVID-19 vaccine is not mandatory in most jurisdictions, but those who refuse it face obstacles, such as difficulties to travel, quarantines, and successive tests. In addition, they may experience varied restrictions in daily life, such as being prevented from entrying into public service facilities and leisure areas, since they lack vaccination certificates and put the health of other individuals at risk [22].

It is extremely important to know the situations where individual autonomy can challenge the complete vaccination coverage, as they can be used as a basis for the development of intervention strategies that seek to reach the largest possible public [17,23].

Among them, it is noted the role of political influence: studies have shown that a lack of confidence in government activities can cause vaccine hesitancy. According to Roberts and collaborators [22], in a survey conducted in the United Kingdom, those who did not trust the government were more likely to not get vaccinated. In addition, affiliation to a political party can also contribute to refusal of the vaccine—especially in the case of a party with a strong populist aspect—and the opinion of politicians acts as a factor influencing the final decision of the person [24-26].

Another significant aspect in vaccine uptake, found together with the lack of trust in the government, is skepticism towards the pharmaceutical industry and supervisory bodies. Several people are hesitant to get vaccinated against COVID-19 because they believe that the vaccine was produced and approved with great speed due to interests in profit, and may thus have greater undesired and unknown effects [22,27-29].

In addition, it should be noted the resistance to getting vaccinated of some individuals with high education level, such as nurses and physicians [24,30-32]. This is possibly due to greater contact during everyday practice with adverse effects that may be caused by vaccines, or to the preference for physiologically acquired immunity [24]. Thus, vaccine hesitancy in the population may increase, since, as reported by Musa and collaborators [33] and Sharma, Davis, and Wilkerson [25], low professional recommendation is another influencing factor.

It is also worth mentioning that the decision-making process is influenced by a combination of several internal and external factors. Among the external factors, social media stands out, because it is an environment in which people can inform and be informed [28]. Many vaccine hesitancy movements gained great visibility and

adherents during the pandemic, largely due to the dissemination of beliefs and opinions on blogs, websites, social media, among others, by their representatives [34,35].

Nowadays, people use the internet to search for all kinds of information, including on health and vaccines. The major problem consists in the quality of information, which is variable and can be inaccurate and/or misleading, leading to negative attitudes about the vaccination process [43].

On the other hand, the study of Hossain and collaborators [36], conducted in Bangladesh, found that people who heard about the COVID-19 vaccine on social media and/or online news websites were less hesitant compared to those who had self-perceptions about the vaccine. In any case, caution is still needed when evaluating such media-related effects.

In addition, lack of confidence, misinformation about adverse effects and misunderstanding about the need for vaccination are some vaccine-related aspects that, in some cases, have come to supersede the fear of the disease that people want to avoid [44]. During the COVID-19 pandemic, when vaccines began to be offered to the population, these perceptions were more abundant in the digital mass, since there was production and dissemination of information without evidence and misleading. This clearly influenced decision-making and implied other uncertainties, such as disbelief in the quality and safety of vaccine manufacture [37,38,45].

In this context, we should seek ways to overcome this barrier and foster greater vaccination uptake and recommendation among health care professionals, who can be compared to influential leaders, as their opinion is often reflected in the people they provide health care for [24,39,40]. The study of Kalam and collaborators [41], which researched behavioral determinants of COVID-19 vaccine uptake in Bangladesh city, found that people were 3.2 times more likely to get vaccinated if a physician or nurse advised them to do so.

Producing and disseminating information based on solid, comprehensive, understandable, and up-to-date evidence about vaccines is an important means of counterbalancing the misleading and wrong information circulating on the internet and outside it. Such strategies also need to address behavioral determinants and beliefs, such as the perceived risk of contracting COVID-19 and the consequences of non-vaccination, in order to increase people's confidence about vaccines in general [42].

Finally, in case of refusal to get vaccinated, health care professionals must be aware of the regulations that govern medical ethics, in order to properly deliberate on their decision [39]. Physicians are prohibited from not guaranteeing the patient's right to autonomy and well-being, as well as they are prohibited from using their authority to impose limits on the individual under their care. They must also inform the patient about the risks and benefits of his or her choice, thus respecting his or her hesitancy to get vaccinated, even if such decision compromises mass immunization [15,46].

Final considerations

The pandemic does not deprive individuals of the right to autonomy in relation to certain decisions about their health, but allows certain restrictions. The application of such restrictions is due to the fact that this problem occurs in the public sphere, requiring measures and interventions that consider the well-being of the social body, such that individual autonomy yields to the principle of responsibility.

High vaccination coverage is essential to control the pandemic and hesitancy is a threat to this goal, as herd immunity depends on the availability of vaccines and the public's willingness to accept vaccination. There are evident concerns about vaccines and various factors that influence the beliefs of the population; however, in the current context, the media and social networks are outlets with intense dissemination of fake news and misinformation about newly produced vaccines.

Another important aspect is how the physician's role in favor of patient autonomy is approached during academic training. Discussions with this purpose enable students to reflect on bioethical dilemmas and obstacles involved in vaccination, providing better development of the ability to define—together with the patient—goals

in the face of changes. From this perspective, such subjects constitute a major challenge for medical professionals, highlighting the importance of addressing them during medical training.

Society in general needs adequate, accurate and high-quality knowledge; therefore, sources providing such information with high reliability and easy assimilation by the population should be a priority for governments. In addition, various efforts by national public health authorities are needed to improve the uptake and coverage of vaccination against COVID-19. Finally, it is understood that additional studies can promote a better understanding of the effects of COVID-19 on vaccine refusal to motivate future actions, in order to reduce this obstacle.

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Gustavo Batista Ferro – Undergraduate – gustavo.b.ferro@gmail.com
0000-0002-2346-4065

Carlos Arthur da Silva Morais – Undergraduate – carlosarthur1234@gmail.com
0000-0003-2846-1733

Erick Antonio Rodrigues Mendes – Undergraduate – erickrmendes2@gmail.com
0000-0002-3423-9904

Francinei Gomes Pinto – Undergraduate – fr4ncinei.gpinto@gmail.com
0000-0003-2963-8473

Patrícia Regina Bastos Neder – PhD – patricia.neder@uepa.br
0000-0002-2090-4176

Correspondence
Gustavo Batista Ferro – Universidade do Estado do Pará. Trav. Perebebuí, 2623, Marco CEP 66087-662. Belém/PA, Brasil.

Participation of the authors

Gustavo Batista Ferro conceived the theme and participated in the writing and final review of the article. Carlos Arthur da Silva Morais, Erick Antonio Rodrigues Mendes, and Francinei Gomes Pinto contributed to the writing and final review of the article. Patrícia Regina Bastos Neder supervised the work and participated in the writing and final review of the article.

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