COVID-19 vaccines and anti-consumption: Understanding anti-vaxxers hesitancy

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Abstract
Anti-vaccination sentiment and vaccine hesitancy are on the rise. This is unfortunate given the world’s coronavirus disease 2019 (COVID-19) pandemic response plan relies on a global vaccination program the likes of which has never been attempted. Using an anti-consumption lens, this study utilizes a qualitative approach and 53 interviews revolving around people’s attitudes towards the COVID-19 vaccination plan. The findings reveal that COVID-19 vaccination hesitancy comes from two major factors: stable factors and contextual factors. Stable factors refer to factors that are consistently found in anti-vaccination movements and include political and philosophical opposition. Contextual factors refer to factors that are highly dependent on the COVID-19 situation and relates to a negative benefit to risk ratio informed by information overload and the influence of marketing phenomena such as branding and country of origin effects. Finally, theoretical and managerial contributions are offered for public policymakers and social marketers.

Keywords
anti-consumption, anti-vaccination, branding, country of origin, COVID-19, vaccine hesitancy

1 | INTRODUCTION

The anti-vaccination movement began when vaccinations were invented (Omer et al., 2009; Purrington, 1899). The psychological reasons driving the anti-vaccination movement and vaccine hesitancy are varied but well documented (Lee & Male, 2011; Omer et al., 2009). This study explores the specific rejection of COVID-19 vaccines to ascertain if those psychological motivations remain similar to previous research or if the context of a worldwide pandemic has resulted in notable differences driving anti-vaccination attitudes and behavior.

The first documented case of anti-vaccination sentiment was targeted at the smallpox vaccine (Purrington, 1899). More recently, after the advent of the internet, other significant incidences of anti-vaccination have been directed at the Measles, Mumps, and Rubella (MMR) vaccination (Omer et al., 2009). In 2019 the World Health Organization (WHO) listed 10 threats to global health. Within those 10 threats, seven were related to disease, and included within that subset was vaccine hesitancy (World Health Organization, 2019).

Even before COVID-19 was a factor, a study conducted by Health Testing Centers in the United States, utilizing data from the Center for Disease Control, revealed declining kindergarten vaccination rates in more than half of all States from 2009 to 2018. Some states such as Arkansas and Georgia experienced a decline of more than 6%; while Colorado, Kansas, and Idaho had their herd immunity fall below the 90% threshold (Heath Testing Centers, 2019). This trend suggests that for the first time in decades, millions of children are now more vulnerable to vaccine-preventable diseases.

Similarly, across the Atlantic, Europe has even lower confidence in vaccine safety, with France having one of the highest rates of vaccine hesitancy in the world (Larson et al., 2016). On the other side of the globe, official statistics from the Australian Department of Health reveal that the percentage of children who are not fully vaccinated and listed by their parents using “conscientious objection” as a reason for vaccine objection, rose from 0.23% in 1999 to 1.77% in 2014. This means the number of children being exempt from vaccinations more than doubled from...
Previous research looking at the collective and individual reasons driving anti-vaxxers has revolved around: ideological opposition, freedom of choice, the uncertainty of information, and risk-to-benefit trade-off (Lee & Male, 2011). If the COVID-19 anti-vaccination movement shares similar motivations as above, then it is now even more imperative to continue studying reasons for vaccine hesitancy, particularly since COVID-19 effects higher socioeconomic groups (particularly the wealthy elderly) as much as lower socioeconomic groups.

In a 2020 study conducted by the New Zealand Ministry of Health, a survey of 14000 people revealed that only 69% would accept a COVID-19 vaccine, while 24% would be unlikely to accept a vaccine, and the remainder being unsure (Ministry of Health, 2020). In order for herd immunity to occur at least 90% of the population should be immunized against COVID-19, such vaccine hesitancy statistics from New Zealand, Australia, The United States, and other countries all indicate an urgency to understand why people remain skeptical of the data supporting immunization.

From a marketing perspective, Lee and Male (2011) argue that anti-consumption of vaccinations shares similarities with the anti-consumption of products. However, several important differences should also be mentioned. While anti-consumption is often associated with positive outcomes for society from a moral, health, and sustainability point of view (Hogg et al., 2009), the anti-consumption of vaccines may have detrimental consequences for society. In addition, in the case of vaccines, the "product" is given away freely, has much societal and government support encouraging its use, and has much scientific evidence supporting its efficacy. Thus, the issue of COVID-19 vaccine hesitancy is not only a public policy or medical problem, but is also a problem that psychology and marketing should be well placed to elucidate.

The next section reviews prior work on anti-consumption and vaccine hesitancy. We then argue that COVID-19 brings with it a different set of conditions that lead to vaccine hesitancy and anti-vaccination sentiment. Then adopting a qualitative research approach, we explore some of the additional reasons driving COVID-19 vaccine hesitancy that previous and current anti-vaccination research has not yet considered.

2 | LITERATURE REVIEW

2.1 | Anti-consumption

Anti-consumption refers to "a resistance to, distaste of, or even resentment or rejection of, consumption" (Zavestoski, 2002, p. 121). Anti-consumption literature has mainly focused on how and why consumers engage in anti-consumption practices, studying for instance brand avoidance, boycotts, and consumer movements (Lee et al., 2020). Since the original special issue in Psychology and Marketing (2002), there has been a sharp and sustained growth in the number of articles expanding the area of anti-consumption, culminating with another Psychology and Marketing special issue in 2020 (Lee et al., 2020).

Research on anti-consumption has established various antecedents that may lead to anti-consumption. For example, a study on brand avoidance classified four main reasons for anti-consumption directed at brands. These reasons were symbolic incongruity, experiential dissatisfaction, ideological discord, and/or a poor cost to benefit ratio (Lee et al., 2009). Other broader level conceptualizations of anti-consumption distinguished two main dimensions of most work in the area. One dimension revolves around the focal object of anti-consumption. There, the focal objects were either specific targets (as in the case of brand avoidance and other forms of company-directed boycotts), or mass consumption in general (as in the case of vegans rejecting the general consumption of all animal products). The other dimension that could also be used to classify anti-consumption work involved the purpose of anti-consumption, with a delineation between micro (individual) or macro (societal) motivations driving the anti-consumption behavior (Iyer & Muncy, 2009). Using these two dimensions, Iyer and Muncy (2009) argued that most anti-consumption research could be broadly categorized into four categories. First, for those concerned with general consumption, anti-consumers could be grouped as either global impact consumers or personal simplifiers. And then for those concerned with a specific object, they could be categorized as either macro level "market activists" or personally motivated "anti-loyal consumers."

Progressively more work has been conducted in the broad area of anti-consumption since then. More often than not anti-consumption is used as an additional lens to garner more insights into sustainability and well-being (Lee et al., 2020). As such, anti-consumption research has also been studied from a noncommercial perspective, as in the case of social marketing. For instance, Peattie and Peattie (2009) discuss the use of marketing’s four P’s as a means of promoting anti-consumption of deleterious products, such as cigarettes. In terms of antimoking campaigns, they recommend a focus on proposition rather than product, accessibility instead of price, costs instead of price, and social communication instead of a promotion. In a similar vein, Shui et al. (2009) also reconsider the four P’s of marketing from a de-marketing perspective as a means of promoting anti-consumption of tobacco. Such studies utilize knowledge of marketing to encourage anti-consumption of certain products. In contrast, our work aims to use understanding of anti-consumption to encourage consumption of certain products, that is vaccines.

Since rejection is at the heart of anti-consumption (Hogg et al., 2009), we argue in this paper that vaccine hesitancy can be considered as a form of anti-consumption. Importantly, Chatzidakis and Lee (2013) argue that the reasons for and against a behavior may not always be logical opposites. For example, people who choose to refuse vaccinations are unlikely to do so because they want immunosuppressed people to die, yet the opposite reason for this (to protect the immunosuppressed from death) is a considerable driver of pro-vaccine attitudes and behavior. Hence the reason against vaccinations, in this brief example, are not the logical opposites of the
reasons for vaccinations. Thus, applying an anti-consumption lens to understanding vaccine hesitancy and anti-vaccination sentiment may be beneficial for understanding the intentions and decisions regarding vaccination acceptance or refusal.

2.2 Vaccine hesitancy, branding, and country of origin (COO)

Vaccine hesitancy, defined as a "delay in acceptance or refusal of vaccines despite availability of vaccination services," occurs in more than 90% of the world’s countries (The Lancet Editorial, 2019, p. 281). As the introduction suggests, vaccine hesitancy is increasing and is the main factor for the 30% increase of measles cases worldwide (The Lancet Editorial, 2019). Whilst some reasons for vaccine hesitancy have been based on false information, the phenomenon is unsurprising if we consider the fact that all medical procedures have potential side effects. Yet objectively speaking, the data and statistics prove that the risk of the vaccine is many times lower than the risk of COVID-19 and other vaccinable diseases such as H1N1, leading to what Li et al. (2021) term "irrational consumption". Thus, this current research attempts to elicit the reasons behind COVID-19 hesitancy.

In the face of a serious threat like the threat of COVID-19, previous research has shown that consumers are psychologically torn between adaptive (Park et al., 2021) and maladaptive behaviors (Ulqinaku et al., 2020). When it comes to vaccines, some people are torn between not getting vaccinated, thus leaving their fate to chance, versus actively doing something (getting vaccinated), which leads to a fear of making the wrong choice. Numerous news stories already report on people refusing the COVID-19 vaccines, due to misinformation with more than 31 million people following anti-vaccination Facebook groups, and 17 million following similar YouTube channels (Burki, 2020). Academic sources also consider vaccine hesitancy and the anti-vaccination movement as serious threats to the world’s COVID-19 response plan (Lazarus et al., 2021; Machingaidze & Wiysonge, 2021; Salali & Uysal, 2020; Stolle et al., 2020).

Previous consumer research looking at the broader anti-vaccination movement identified uncertainty on the internet as one major psychological reason for anti-vaccination (Lee & Male, 2011). Other medical research classifies the main reasons for vaccination using the "3Cs" or "5Cs" framework (Betsch et al., 2018; MacDonald, 2015). In that research, intention to accept or refuse vaccination is driven by issues of confidence, complacency, constraints, calculation of risks, and collective responsibility. However, what is missing, perhaps surprisingly so, from prior work on vaccine hesitancy, are marketing concepts such as the role that Country-of-Origin (COO) and branding can play as mental heuristics to reduce uncertainty in product and brand purchase decision making. If brands and COO are used by people on a daily basis when making consumption decisions in general (Keller, 1993; Verlegh & Steenkamp, 1999) and in the domain of health in particular (Gürhan-Canli & Maheswaran, 2000; Kemp et al., 2014), would it not also make sense that such heuristics play a role in vaccine intention? As such, we anticipate branding and COO as two potential marketing factors driving COVID-19 hesitancy.

Much research in the area of branding has shown time and time again the powerful effect of branding on consumer behavior. The seminal works of Keller (1993), Aaker (1996), and Fournier (1998) position brands as powerful relationship-building tools, which organizations often use to garner trust, preference, usage, and loyalty from consumers and the broader marketplace. For instance, Sung and Kim (2010) demonstrate that certain brand personalities such as sincerity have a positive influence on customer trust. Interestingly the aforementioned study discovered that brand sincerity had a more significant positive influence on trust than brand competence. However, the authors concluded that the context of their study (fashion products) might explain why brand competence did not have much effect (Sung & Kim, 2010). In terms of our current study, whilst we take a very different qualitative rather than quantitative approach, it is still worthwhile considering the effect of brands within a medical (rather than fashion) setting. As several COVID-19 vaccines have been released in the market at the same time, one could reasonably assume that brand values such as competence and sincerity would influence vaccination decision making.

As mentioned earlier, another well-researched marketing phenomenon that has been shown to influence consumer decision-making is COO (Gürhan-Canli & Maheswaran, 2000; Verlegh & Steenkamp, 1999). “Country-of-origin refers to the extent to which the place of manufacture influences product evaluation” (Gürhan-Canli & Maheswaran, 2000, p. 309). Many meta-analyses have confirmed the powerful effect of COO. Essentially, a product or brand associated with a positive COO acts as a signal of quality, which then influences consumers’ perceptions of risk and value as well as their purchase intentions (Pharr, 2005; Phau & Chao, 2008). The flip-side of positive COO is the phenomenon known as consumer animosity (Klein et al., 1998). Here consumers avoid or reject products and brands associated with a negative COO (Lee et al., 2009). Since consumers have witnessed the development of vaccines against COVID-19 in real time, they have been able to see the origins of the various vaccines, which implies that COO phenomena could influence vaccination decisions. Yet there is a lack of research linking COO to COVID-19 vaccine hesitancy.

Finally, other marketing concepts such as the innovation adoption curve (Rogers, 1962), states that only a certain number of people (16%) of the general population are ‘innovators’ and “early adopters” for new products. Thus, innovation resistance is an area that investigates why consumers resist innovation. Many psychological factors may prevent the consumer from adopting an innovation ranging from mere habitual inertia with existing technologies to active rejection due to risk aversion and the potential negative emotions associated with innovation adoption (Rogers, 1962). Given the way in which mRNA technology has been used to create some of the COVID-19 vaccines, as well as the revolutionary speed by which all COVID-19 vaccines have been developed, we also argue that
innovation resistance might arise as another psychological reason motivating hesitancy towards COVID-19 vaccines.

The majority of research looking at COVID-19 vaccine hesitancy has been survey based (e.g., Machingaidze & Wiysonge, 2021; Salali & Uysal, 2020). Whilst the scale and generalizability of quantitative data is vital for advancing public policy and other health-related interventions, such data is often sourced from surveys based on a range of predetermined criteria. As a result, such data is incapable of generating new reasons for vaccine hesitancy. Survey-based studies can only measure the degree to which people agree or disagree with predetermined factors. Thus, to further explore and to continue developing new understanding of the anti-consumption of COVID-19 vaccine, this study article adopts a qualitative approach to evoke stories revolving around COVID-19 vaccinations. Our objective was to determine if the reasons for anti-COVID vaccination were similar or different to existing anti-vaccination/vaccine hesitancy motives reviewed in the extant literature.

## 3 | METHODOLOGY

### 3.1 | Data collection

To answer our research question, we conducted semi-structured interviews with French consumers. Our choice to study the French context is due to the country having one of the lowest rates of vaccine confidence. In their global study of vaccine confidence in 67 countries, Larson et al. (2016) show that the European region has the lowest confidence in vaccine safety with France having one of the highest rates of vaccine hesitancy in the world, at 45.5%. A more recent study on the vaccine against COVID-19 confirms the great resistance of the French population (Lazarus et al., 2021).

The importance of this hesitation towards vaccines in France has several causes (Vignaud & Salvadori, 2019). First, while anti-vaccination has existed since the invention of vaccination, it really developed in Europe when vaccination was made compulsory in the 19th century in England and in the 20th century in France, thus generating contestation due to state interference in the privacy and freedom of individuals. In addition, over the last thirty years, the French have lost confidence in their health authorities because of several health scandals: contaminated blood, asbestos, or more recently the Mediator (an anti-diabetic drug responsible for serious valve insufficiencies that have caused the death of at least 500 people in France). Finally, Vignaud and Salvadori (2019) also note a number of inconsistencies in communication coming from the Ministry of Health, particularly during the hepatitis B vaccination campaign and during the H1N1 flu, thus reinforcing the confusion among the French.

Interviews were conducted by students from a third-year Bachelor’s course on Consumer Behavior as a part of their course requirements. Consistent with previous research having used the same method to collect qualitative comments (e.g., Freedman & Goldstein, 1999), we followed some guidelines. First, interviewers were trained beforehand and instructed on how to ask probing follow-up questions at appropriate places by the first author of the paper. Second, all students asked the same questions to minimize bias and interviewer effects and to ensure the same broad areas of interest were covered. More precisely, the interview guide comprised four main topics: the way in which the pandemic is experienced by the respondent, the relationship to vaccination in the broad sense, their perception of solutions to the health crisis, and the reasons for not getting vaccinated against COVID-19. Before starting the interviews, the interviewers ensured participants that their identities would remain confidential. Finally, interviewers were assigned to select respondents representing different demographic backgrounds in terms of age, gender, location, and socioeconomic status.

Overall, 66 interviews were conducted. However, thirteen interviews were removed from the analysis, five because they lasted less than 20 min and eight because there was no clear evidence of vaccine hesitancy, leading to 53 usable in-depth interviews. The final sample comprises 30 women, 23 men, with ages ranging from 19 to 73, an average 38, which is close to the average age of the French population. Regarding their occupational status, six informants were retired and five were unemployed, while the others held jobs in various sectors. In terms of location, 10 were living in the countryside and 43 in urban areas (Table 1).

### 3.2 | Data analysis

The interviews lasted between 30 and 80 min. They finally accounted for more than 35 h of conversation and produced 118 pages of single-spaced transcribed text. Three levels of coding were performed (Gioia et al., 2013). First, by reading and re-reading the text, we identified, through an open-ended approach, evidence of reasons for not getting vaccinated. Second, by iterating between the literature on anti-vaxxers and the data, we used axial coding to pinpoint similarities and differences among the many categories (Corbin & Strauss, 2015). We then compared first-order concepts with one another to clarify themes. Third, we identified aggregate dimensions from the sets of second-order constructs. This process, which is summarized in Figure 1, allowed us to identify four themes related to COVID-19 vaccine hesitancy: risk to benefit ratio, branding and COO effects, information overload, and ideological opposition.

The trustworthiness of the study was assessed by applying four criteria (Flint et al., 2002): (1) credibility, the extent to which the results are a good representation of the data, was ensured by the significant number of interview conducted; (2) generality, the extent to which the results capture multiple facets of the phenomenon, was established through the length of the interviews and their openness to elicit many different aspects of the phenomenon; (3) transferability, the extent to which the findings can be applied to other contexts, was based on the usage of a sample of respondents representing different demographic backgrounds, and (4) integrity, the fact that the results are not influenced by participants’ evasions, was ensured by neutrality in the conduct of the interview and guarantee of the anonymity of the respondent.
Overall, our data reveal four themes related to the anti-consumption of COVID-19 vaccine: risk-to-benefit ratio, branding and COO effects, information overload, and ideological opposition. While some of these themes have already been covered by previous research, our data highlights some specificities due to the COVID-19 context.

4.1 | Risk to benefit ratio

4.1.1 | Side effects, betrayal, and time of development

In general, the choice of getting vaccinated or not is guided by a trade-off that consumers determine between the benefits of the vaccines and the risks that are associated with them (Lee & Male, 2011). This psychological trade-off represents the degree of confidence that consumers may have in a given vaccine (Vergara et al., 2021). Thus, even though some anti-vaxxers may perceive some benefits of vaccination, for them either the risks associated with vaccination are greater than the benefits or the ratio is simply too small. The vaccine against COVID-19 being new, it can be considered as an innovation that arouses resistance (Rogers, 1962). According to our data, the risks are particularly related to the side effects that vaccines can have. Indeed, like all drugs, vaccines have side effects which can be more or less important and more or less

| First Name | Gender | Age | Occupation | Location |
|------------|--------|-----|------------|----------|
| Christine  | Female | 27  | Receptionist | Urban    |
| Elisa      | Female | 24  | Worker     | Urban    |
| Isabelle   | Female | 47  | Manager of a hair salon | Urban    |
| Killian    | Male   | 18  | Student    | Urban    |
| Gérard     | Male   | 73  | Retired    | Countryside |
| Salma      | Female | 29  | Sales assistant | Urban    |
| Axel       | Male   | 22  | Student    | Countryside |
| Xavier     | Male   | 40  | Artisan    | Countryside |
| Stéphane   | Male   | 46  | Digital project manager | Urban    |
| Sonia      | Female | 45  | Worker     | Urban    |
| Capucine   | Female | 20  | Student    | Urban    |
| Cecilia    | Female | 32  | Secretary  | Urban    |
| Emmanuel   | Male   | 50  | Team manager | Urban    |
| Monique    | Female | 70  | Retired    | Countryside |
| Valentin   | Male   | 21  | Student    | Urban    |
| Corinne    | Female | 55  | Shopkeeper | Urban    |
| Gérôme     | Male   | 53  | Unemployed | Urban    |
| Misha      | Female | 25  | Employee   | Urban    |
| Sylvain    | Male   | 51  | Worker     | Urban    |
| Isabel     | Female | 50  | Engineer   | Urban    |
| Josseline  | Female | 69  | Retired    | Countryside |
| Alex       | Male   | 28  | Worker     | Urban    |
| Eline      | Female | 28  | Accountant | Urban    |
| Jean       | Male   | 72  | Retired    | Urban    |
| Alban      | Male   | 50  | Business executive | Urban    |
| Line       | Female | 22  | Artist     | Urban    |
| Lou-Anne   | Female | 36  | Employee   | Urban    |
| Luc        | Male   | 39  | Unemployed | Urban    |
| Anne       | Female | 37  | Teacher    | Urban    |
| Manuel     | Male   | 30  | Worker     | Urban    |
| Cally      | Female | 23  | Assistant brand manager | Urban    |
| Marie-Sylvaine | Female | 72  | Retired    | Countryside |
| Genevieve  | Female | 68  | Retired    | Urban    |
| Julien     | Male   | 30  | Bus driver | Countryside |
| Sylvaine   | Female | 60  | Physiotherapist | Urban    |
| Lyann      | Female | 33  | Waitress   | Urban    |
| Sandrine   | Female | 49  | Worker     | Urban    |

(Continues)
frequent, which are then sometimes considered risks that outweigh the benefits of vaccines for some of our informants:

The vaccine scares me a bit I must say. We hear a lot about side effects. I don't feel like injecting myself with something that can be more dangerous than the virus itself. Sonia, 45

Sonia here considers the secondary effects associated with the vaccine as more serious threats than the virus itself. For consumers, there is a discrepancy between what the vaccine is supposed to do, that is, protect against disease and the fact that it can generate illness through side effects. These consumers, therefore, feel a form of betrayal between the promise that is made and the potential outcome linked to side effects (Gershoff & Koehler, 2011):

When you think about it, it's unbelievable that a vaccine that is supposed to protect you makes you sick. In fact, the vaccine does the exact opposite of what it is supposed to do [...] We are misled. Luc, 39

In addition, our data show that the risks associated with vaccination are increased by the relatively short development time of anti-COVID vaccines. While the development of vaccines is sometimes reported to take on average over 10 years, it took less than two years to develop vaccines against COVID-19. This was a result of the urgency of the situation, unprecedented international cooperation between scientists, as well as leveraging pre-existing developments made during the SARS-CoV-2 crisis (Hanney et al., 2020). Yet, for many individuals, this dramatically reduced development time raised even greater suspicion and concerns:

I think a vaccine developed so quickly can be dangerous especially when you look at the financial and competitive determinations of the laboratories that have been racing to be the first to release the vaccine. This should not happen for such an important subject. I think that if the vaccine can save lives and get us out of this seemingly endless crisis, it can only be beneficial, but we still need to know what it can cause and its dangers because we are getting vaccinated in our populations that are the most sensitive. Valentin, 21

Informants thus draw a parallel between development time and vaccine risks. The shorter the development time, the greater the risks, some not hesitating to qualify them as “the most dangerous vaccines in the history of vaccination.”

I wait a bit to see what happens with the guinea pigs. Despite decades of research, no vaccine exists for diseases like cancer or AIDS. And there, a new virus appears, and a vaccine is produced immediately as if by magic! Genevieve, 68

For Genevieve, the benefit-risk ratio is currently much too low because she thinks that, taking into account the normal timeframe for the development of vaccines, we are currently only at a test phase, which brings her to consider the first recipients of the vaccines as guinea pigs who will experience side effects on a large scale.

| First-Order Codes | Second-Order Constructs | Theoretical Dimensions |
|-------------------|-------------------------|------------------------|
| • Side effects of vaccines | Uncertainty | |
| • Sense of betrayal | Information overload | Risk to benefit ratio |
| • Short development time | Branding and COO effects | |
| • Doubt about the effectiveness of the vaccines | Philosophical opposition | Ideological opposition |
| • Large amount of information | Freedom of choice | |
| • Conflicting information | Hostility towards a political system | |
| • Difficulties to make sense of very small numbers | Opposition to big pharmaceutical companies | |

**FIGURE 1** The coding process
As previously mentioned in our literature review, the innovation adoption curve and innovation resistance are classic business/marketing concepts that have not yet been linked with anti-vaccination sentiment. Yet, our data points to a clear connection between the innovation of vaccines (the COVID-19 vaccines in particular) and psychological vaccine hesitancy.

4.1.2 | Risks and uncertainty

We argue that the risk-to-benefit ratio driving vaccine hesitancy is actually driven by uncertainty, thus implying that consumers are not able to identify the benefits as well as the risks of the vaccines because of several confusion and contradictions. Consequently, anti-vaxxers exhibit an uncertainty about the efficacy of the vaccine to fight the pandemic, especially because they do not perceive the virus as a very important threat:

If you are not a person at risk, I do believe the virus is inoffensive. Why get vaccinated against something that is harmless? Alice, 22

Among the interviews that we conducted, some people argue that according to them it is not the vaccine that will allow us to get out of the pandemic but rather the treatments to cure the disease. This point is reinforced in France where Professor Raoult, a famous scientist, and expert in infectious diseases (who has been very present in the media during the crisis), has publicly pleaded from the beginning of the crisis for treatment with hydroxychloroquine:

It is not because I refuse to be vaccinated that I endanger others. Do those who refuse to get the flu shot put others at risk? Before a vaccine hits the market-I mean a real vaccine-, there will already have been tons of treatments that will have enough effect against the coronavirus. […] Luc, 39

For others, it is the effectiveness of all vaccines that have to be reconsidered. By relying on historical examples, these informants try to demonstrate that the decline or even the eradication of some ancient diseases has been made possible because of progress in terms of hygiene, not vaccines:

As such I have nothing against vaccines. But I'm really not sure this is the best way to fight the virus. I have the feeling that a lot of diseases have disappeared not because of a vaccine but because people are cleaner, pay more attention to their hygiene, etc. I think it will be the same for COVID-19. By respecting some protection measures, I mean wearing a mask, avoiding hugs and handshaking, this kind of things, I think we can achieve collective immunity. Gilles, 43

For Gilles, the psychological uncertainty surrounding the effectiveness of vaccines is such that he believes that it is safety measures that will ultimately make it possible to control and then stop the pandemic. For this reason, he refuses to be vaccinated. Indeed, our data is also corroborated by other inquiries of a similar nature in the United States revealing that people under 50 were far less likely to accept the COVID-19 vaccine since the perceived risks of the disease were so much lower for them (Stewart, 2021).

4.2 | The branding/COO effect

Interestingly, our data also highlights that the choice not to be vaccinated is informed by two marketing phenomena: A branding judgment and a COO judgment. To our knowledge, previous research has not applied the marketing concepts of branding and COO to the understanding of vaccine hesitancy and the anti-vaccination movement.

First, the participants argue that they do not want to be vaccinated because they cannot choose the company that has produced the vaccine, thus suggesting a branding effect (Kemp et al., 2014). Some vaccines benefit from a better brand image in the market than others, thus generating new practices in the field of vaccination: the desire to choose his/her vaccine as suggested by Sandrine:

And then there are vaccines that I do not have want to do, which I don't necessarily trust. So for the moment I am not concerned by the vaccination […] but I would not like to have one vaccine imposed on me rather than another, I would like to choose the vaccine that I want to do. Sandrine, 49

The AstraZeneca vaccine has particularly caught the attention of consumers. Due to suspected cases of thrombosis but also because its effectiveness is reduced on some variants of the virus. Consequently, a number of European countries, including France on March 15, suspended the use of the AstraZeneca vaccine. On March 18, 2021, the European Medicines Agency issued an official recommendation in favor of the vaccine, stating that the vaccine is safe and effective. However, these events had a strong impact on the branding and the benefit-risk ratio for this vaccine, which arouses more mistrust rather than confidence, especially compared to the Pfizer vaccine:

I don't want to get vaccinated with AstraZeneca. Other vaccines seem much safer to me. We never heard anything about the other vaccines. The Pfizer for example I find reassuring. There was never a problem with it. While with AstraZeneca, it has been controversial several times. It's not for nothing. It's a strong signal I think. A signal that it is riskier than the others. Julien, 29

Thus, our study reiterates the powerful effect of branding already revealed in more general marketing contexts (Aaker, 1996;
Fournier, 1998; Keller, 1993) as well as within the specific domain of anti-consumption (M. S.-W. Lee et al., 2009). However, to our knowledge, our research is the first to further demonstrate the effect of branding in a medical vaccination context.

Second, the data indicate that the benefit-risk ratio is also informed by a COO judgment. In the case of vaccination against COVID-19, the analysis shows that positive and negative COO cues are used in evaluating what can be considered here as a new product. COO is widely used in marketing by consumers to evaluate the different alternatives insofar as it is a complex market for which consumers do not have the knowledge to correctly assess the product attributes. Thus, for our respondents, vaccines from countries culturally distant and politically different from France, generate little confidence (Klein et al., 1998):

I have little confidence in vaccines produced by dictatorships like China and Russia, i.e., regions which are not transparent and which would be ready to hide things. While with vaccines produced in democracies, we know there is more transparency, more control.

Isabel, 50

Furthermore, aligning with the prior research on positive COO (Gürhan-Canli & Maheswaran, 2000; Pharr, 2005; Phau & Chao, 2008; Verlegh & Steenkamp, 1999) our data also reveal some consumers showing ethnocentrism, that is, the inclination to trust a domestic vaccine rather than a foreign vaccine. Indeed, in a crisis situation with people under threat, individuals tend to value more local interests, that is, those of the community or the COO:

Regarding the origin, I find that in France we have the Pasteur Institute which is very famous. We are the greatest researchers on vaccines. When I hear that the Soviet Union is giving us a vaccine, it doesn't give me confidence because I've always heard bad things about them. It pulls me back a bit. Josseline, 67

In this quote, even though the Institut Pasteur, which tried to use a vector of the measles virus, abandoned its research, Josseline continues to have more confidence in French scientists and a French vaccine than a Russian vaccine. This branding and COO theme is novel and has not been an explicit aspect of previous research on the anti-vaccination movement and vaccine hesitancy.

4.3 Information overload

One of the most striking specificities of the COVID-19 crisis, compared to any other contagious diseases, lies in the fact that the starting situation is different as there is a pandemic rather than a state of herd immunity. Consequently, individuals are not only strongly impacted by the negative consequences of the pandemic, from the point of view of individual freedoms, but they also see in real time the joint efforts of scientists and politicians to control and contain the crisis. A large number of participants thus assert that they are confronted with a very large amount of information that they have difficulties to make sense of, thus reinforcing their feelings of uncertainty regarding the crisis (Sax & Doran, 2019):

I find that today there is too much debate, when you listen to someone say something, a quarter of an hour later you hear the opposite. So many doctors who are not necessarily specialists are interviewed, they each say what they want and for me it is extremely difficult to know what is true and what is not true because one says something and the other says something else. Gérard, 73

Like Gérard, many consumers feel there is too much information which, in addition, is sometimes contradictory. Information overload creates two major obstacles to decision making: the inability to locate what is relevant due to a large volume of information and overlooking what is most critical among relevant information (Lee & Lee, 2004). Information overload can psychologically inhibit consumer decision-making abilities. While these feelings of being overloaded by information relating to the pandemic in the broad sense, they are particularly focused on the issue of vaccination. As suggested by Loewenstein et al. (2001), feelings like fear and worry can prevent people from proceeding with an analytical assessment of the underlying risk. Consumers can thus find themselves inhibited and as a consequence choose not to be vaccinated:

It’s quite stressful to follow this crisis on a daily basis with new information every day, new data every day, new statements every day. I admit that I find it difficult to follow all of this. And I find it even more difficult to form a clear opinion. This is especially true for vaccines. Honestly, I cannot say what I think of it. Cecilia, 32

In addition to the generally overwhelming media coverage of COVID-19 and much conflicting information which then leads to the uncertainty of the cost to benefit ratio, information overload also occurs if we consider the cognitive limitations of the human mind that in turn, favor the anti-vaccination movement. Whilst science is objective, and decisions favor a probabilistic approach. People do not see themselves as a statistic, and it is this psychological factor of human experience/bias that gives the anti-vaccination movement a strong impetus to effect attitudes and influence behavior.

The human mind did not evolve to cope with numbers and percentages of very small or great magnitude, numbers referred to as existing outside "human perception," for example, nanoseconds or geological time scales (Resnick et al., 2017). Rather, it has evolved to understand tangible figures and oral narratives. For instance, we argue that a fact, such as only 372 out of one million vaccinations result in nonserious side effects (Remmel, 2021) creates a figure (0.0372%),
which is exceedingly difficult to grasp by most. Similarly, the Centre for Disease Control (CDC) reports 640 serious side effects in 13.8 million doses of the PfizerBioNTech and Moderna COVID-19 vaccine (Gee et al., 2021). This equates to a 0.0046% chance of serious side effects, which is also an extremely difficult number to comprehend. However, an anecdote about 33 (or six) people dying shortly after receiving the Pfizer-BioNTech vaccine sticks in our minds. As does an inconclusive link between AstraZeneca and blood clots/thrombosis. These uncorroborated stories influence people and, in some cases, governments, even when no conclusive causal link has been established (Remmel, 2021), and even when we know we should be rational:

We hear a lot of information about the risks of the vaccine, about the side effects. These figures are a bit scary even if they are not always easy to understand. It is a bit abstract all that, especially for the general public who does not necessarily have the hindsight of scientists. But if the media talk about it, we can still think that it means that these figures are not insignificant. Michel, 65

As it is illustrated by this quote, even if some side effects have very low probabilities, consumers do not necessarily have the scientific and statistical knowledge to interpret the data and assume that if media talk about side effects, no matter how unlikely, it must be important.

4.4 | Ideological opposition

4.4.1 | Philosophical opposition

The fourth major theme reflecting the refusal of individuals to be vaccinated against COVID-19 refers to ideological opposition to what vaccination represents. Ideology refers to “a worldview readily found in the population, including sets of ideas and values that cohere, that are used publicly to justify political stances, and that shape and are shaped by society. […] Cognitively, ideology refers to what one ‘sees’ and responds to in the social world” (Dawson, 2001, pp. 4–5). Thus, vaccination would be in opposition to the deep beliefs of some consumers. More specifically, our data first reveals a philosophical opposition. Philosophical opposition, which can sometimes have a religious basis (Kennedy et al., 2005), is opposition on the field of ideas regarding the way of approaching the world. The central philosophical idea that is at stake for anti-vaxxers is the idea of freedom. Some participants that we have met exhibit a firm opposition to the idea of forcing the entire French population to be vaccinated because of the principle of freedom:

We are told that there is no obligation but in fact, we are forced to vaccinate ourselves because we know very well that if we want to return to an almost normal life, we will have to be vaccinated […] which does not prevent my fears. Killian, 19

As suggested here by Killian, individuals are attached to this principle of freedom since they have the feeling of hearing a double discourse: on the one hand, the French government tells them that the vaccination is voluntary and refers to an individual choice but on the other hand they understand that they will have to prove that they have been vaccinated to be able to access certain activities and places, such as traveling. This double discourse about the principle of freedom is mainly concentrated in the notion of an immunity passport, that is, a passport for people who have been vaccinated proving that they can no longer transmit the virus and will therefore be able to travel again:

You cannot force a person to be vaccinated. We must be able to be free in our decision-making. If some airline companies practice the immunity passport, I will boycott it and take another company. Salma, 29

As we can see here, Salma does not want to be forced to be vaccinated. She clearly rejects the idea of an immunity passport and is ready to extend her rejection of vaccination to all the organizations which condone it and thus oppose her individual freedom.

4.4.2 | Political opposition

The second type of ideological opposition that our data has identified is a political opposition which refers to hostility towards a political system that is linked to neoliberalism and capitalism, sometimes referred to as the “medical/industrial complex.” Indeed, for some of our informants, capitalist markets are seen as hegemonic and totalizing (Kozinets & Handelman, 2004) and neoliberalism has created a world where everything is marketable, including health. Capitalism has organized a hierarchy according to which profit would be prioritized over public health (Kozinets & Handelman, 2004). Consequently, some consumers claim to categorically refuse vaccination because they do not want to play the game of the big pharmaceutical companies which are making profits from this pandemic:

We have never seen a vaccine available in such a short time. I will not be vaccinated. Never […] All this just to fill the pockets of pharmaceutical labs… Christine, 27

Here again, this political opposition is reinforced by the fact that consumers are experiencing the pandemic. They are witnesses of the race in which companies around the world have embarked to find a vaccine as quickly as possible. If this quest may have generated concerns about the benefit-risk ratio as we have seen previously, it also raised questions about the motivations of the laboratories as well as the decision to somehow force the entire French population to vaccinate:
There is a big money story behind this whole crisis. If there has been such a chase for whoever would first launch his vaccine, it is still in the first place because there is a real jackpot behind it. And then inevitably, when you make vaccination compulsory, you play the game of all these laboratories. And you enrich them even more. I don’t want to participate in this. To this system. Jean-François, 44

In this quote, we see that Jean-François goes so far as to suggest that the vaccine obligation would be imposed for the profits it generates, thus approaching certain conspiracy theories (Visentin et al., 2020). While the references to such theories remained minor in our study, the suspicion vis-à-vis the business around vaccination, on the other hand, emerged more frequently.

5 | DISCUSSION

5.1 | Theoretical contributions

Consistent with our theoretical framework, this study makes contributions to two major streams of research: anti-consumption and vaccine hesitancy. First, this study adds to the vaccine hesitancy literature by highlighting new areas driving vaccine hesitancy that have not been previously mentioned by prior anti-vaccination research. Namely, our data indicated marketing phenomena such as branding effects as well as COO effects driving COVID-19 vaccine hesitancy and anti-vaccination sentiment. While the role of the brand (Aaker, 1996; Fournier, 1998; Keller, 1993; Sung & Kim, 2010) and COO (Gürhan-Canli & Maheswaran, 2000; Klein et al., 1998; Pharr, 2005; Phau & Chao, 2008; Verlegh & Steenkamp, 1999) has already been demonstrated generally in marketing and sometimes even in the specific field of health (Kemp et al., 2014), this current research is the first to highlight those phenomena in the case of vaccine hesitancy.

Also of note was the contextual characteristics of the COVID-19 crisis that has not been present in prior anti-vaccination studies. The current pandemic differs from other anti-vaccination scenarios where the status-quo is a state of herd immunity. The fact that the starting situation is a pandemic rather than a state of herd immunity has several implications: people are living the consequences of the pandemic; people are experiencing, in real time, the efforts to fight the virus; and people are constantly being exposed to tremendous amounts of information related to this fight. The difficulty for people to comprehend all the data and information related to vaccination, specifically numbers that exist beyond the human experience (Resnick et al., 2017), means that psychological uncertainty is even greater than for all previous anti-vaccination phenomena.

In other situations, the choice not to vaccinate takes place in circumstances of low urgency, but also low media coverage and low compliance enforcement. Indeed, while many Western countries do not mandate compulsory vaccination against any diseases, there is certainly more pressure from public policymakers to ‘encourage’ COVID-19 vaccination. The limits on personal freedoms, which could occur if one refuses to be vaccinated, are more stark and apparent in the COVID-19 than in most other cases of vaccine-preventable diseases. Certainly, this “pressure” was mentioned on numerous occasions by our informants. The speedy development of COVID-19 vaccines was another situational factor unique to COVID-19, that did not previously feature in prior work on vaccine hesitancy. While uncertainty is a major driver for most vaccine hesitancy, the speed at which COVID-19 vaccines were developed brings vaccine hesitancy to new levels not experienced in previous vaccination programs.

Second, we also contribute to the anti-consumption literature. To date, this framework has been applied to contexts where the anti-consumption is linked to collective well-being from a moral, health, and sustainability point of view (Hogg et al., 2009). Our study shows that while the anti-consumption of vaccine is also driven by moral and health reasons, its consequences remain detrimental to society since the state of collective immunity necessary to end a pandemic will be more difficult to achieve, which raises an interesting paradox.

In addition, we also add to this stream of research by suggesting two additional drivers of anti-consumption, namely lack of choice and uncertainty, which have been considered briefly in the literature. Regarding lack of choice, Yuksel et al. (2020) revealed that as the number of anti-consumption calls increases (from increasing numbers of activist groups promoting boycotts of various companies) the number of boycotts that people would decide to partake in, would actually decrease. This choice overload phenomenon was explained through the “small agent rationalization” whereby people faced with many anti-consumption requests may consider the world an inherently unjust place as well as lose their own sense of efficacy. In other words, feel like a “small agent” amidst large problems. When compared with the context of our vaccine hesitancy findings, we find a different yet complimentary effect. In our case, individuals who cannot choose the brand or origin of their vaccine would rather refuse consumption than consume a vaccine they did not choose and do not trust. As Yuksel and colleagues determine, too much choice may lead to a lack of desire to practice anti-consumption, our findings further suggest that too little choice can also increase the likelihood of anti-consumption. Our data emphasize the same pattern regarding uncertainty. While the literature has just evoked uncertainty as a potential driver of anti-consumption (Cherrier, 2009), this study shows that when consumers experience a high a level of uncertainty, they reject the proposed offer and decide not to consume.

Furthermore, we also contribute to the anti-consumption literature that has specifically studied motivations for the nonconsumption of vaccines. Consistent with previous literature (e.g., Lee & Male, 2011; Omer et al., 2009), our data highlight the role of risk to benefit ratio and ideological opposition as key drivers of COVID-19 vaccine nonconsumption. It is also interesting to note that these elements are common to the anti-vaccination movement in the broad sense, even though the case of COVID-19 is very different. Indeed, as suggested by Lee and Male (2011), the nonconsumption of vaccines is paradoxical since it is easier for anti-vaxxers not to consume.
when the majority of individuals consume, that is, when there is a form of collective immunity. However, in the case of COVID-19, herd immunity is not achieved, which means that anti-vaxxers face the detrimental consequences of the presence of a contagious disease in society. However, individuals continue not to consume for reasons that are similar to other vaccination situations, which shows the stability of factors such as risk-to-benefit ratio and ideological opposition.

Overall, our work reveals that while many of the previous drivers of vaccine hesitancy and anti-vaccination sentiment still exist for COVID-19 vaccines, there are now additional factors that further complicate the anti-consumption of COVID-19 vaccine. More precisely, we suggest that COVID-19 vaccination hesitancy comes from two major factors: stable factors and contextual factors (Figure 2). Stable factors refer to factors that are consistently found in anti-vaccination movements and include ideological opposition in the form of political and philosophical opposition. At the opposite, contextual factors refer to factors that are highly dependent on the COVID-19 situation and relates to a negative benefit to risk ratio. This ratio can be determined by an uncertainty about the effectiveness of vaccines to get us out of the pandemic or information overload that individuals are unable to comprehend. In addition (and unmentioned in previous research), it appears that in the COVID-19 pandemic, and similar to other areas of marketing, brands and COO act as heuristics to help make a decision, thereby enhancing the benefit to risk ratio. Yet while branding and COO may benefit some vaccines, they are also double-edged swords that may not be beneficial for the worldwide COVID response plan as we will discuss in the next section.

### 5.2 Managerial implications

This study has many implications for public policy. Overall, this study provides practitioners with a comprehensive description of the arguments and motivations of anti-vaxxers. Indeed, to convince people who do not wish to be vaccinated against COVID-19, we believe that the first step involves knowing in detail the psychological reasons for their resistance to be able to, in a second step, communicate effectively against their arguments. More precisely, our study first shows that consumers are reluctant to receive COVID-19 vaccines because they think that the ratio between the benefit and risk is largely unfavorable, in particular, because of side effects. The vaccine hesitant, therefore, experience great uncertainty about the effectiveness of the vaccine to get us out of the pandemic. To ensure that the ratio becomes more favorable, we believe that it is necessary to insist/communicate (essentially “market”) the benefits of vaccination and collective immunity. Indeed, unlike many other contagious diseases, the issue of the vaccination against COVID-19 did not begin with a state of herd immunity. This means that consumers suffer the consequences of the presence of the virus in their social life. By communicating in a massive and coherent way that vaccination is the only way to achieve collective immunity and therefore to stop the pandemic for a long time, health authorities could convince some people who currently believe that the risks are now greater than the benefits.

Second, our data highlight that some individuals refuse to be vaccinated because they cannot choose their vaccine, which emphasizes a branding and COO dimension. It may be of interest for public policymakers to note that in contexts of uncertainty, marketing phenomena such as brands and COO are used as heuristics for certainty. Yet when consumers are highly certain of their needs, branding effects become less relevant. Thus, if public policymakers are not careful, the uncertainty surrounding COVID-19 vaccines may pave the way for branding and COO effects to become a permanent feature of all health interventions. For instance, when the rich (or those with the means) insist on specific brands of health products, which then reduces confidence in other (perhaps equally valid and affordable) interventions. Recent research already posits the “neo-liberal logic” (i.e., when health is regarded as an individual and agent consumption decision rather than a social duty or community-based intervention) as a further reason possibly contributing to vaccine hesitancy (Wiysonge et al., 2021). Hence it is unsurprising that marketing concepts such as branding and COO effects should arise as
factors also capable of influencing vaccination (consumption) decisions. In terms of vaccine hesitancy, one actionable solution for such a dilemma could be to promote, with certainty, that the overall functional benefits of vaccination both at a societal and individual level are essentially the same regardless of vaccine brand. Indeed it would be far better to have 85% of the population vaccinated with a variety of all available vaccines than to have 50% vaccinated with a “premium” brand of vaccine, and the rest of the population waiting for the same vaccine. In fact, recent research suggests that if supply of vaccines cannot meet demand, then people “overlooked” by vaccination programs become more vaccine hesitant than they originally were (Bruine de Bruin et al., 2021). Those quantitative findings make sense when interpreted through the lens of our qualitative discoveries. A person might be slightly uncertain, but then has their mindset on a specific brand of vaccine. Their preferred vaccine then becomes unavailable due to supply issues. At that point, it is not difficult to imagine that such a person may be much more reluctant to accept an alternative vaccine.

Third, our data indicate that the vaccine hesitant and anti-vaxxers feel a huge sense of information overload which causes confusion and misinterpretation of certain data. Indeed, much of the health communication delivered by public health officials relies heavily on statistics and hard facts. Yet as discussed earlier, psychologically, the human mind seeks and retains meaning more effectively through story form. Such emotion-based tactics explain why the anti-vaccination movement continues to increase and has also been posited as a method by which pro-vaccine practitioners may also convey the benefits of vaccination relative to the perceived costs. We agree that many false theories driving vaccine hesitancy are ‘sticky’ because they are emotive and anecdotal. While stories of successful vaccinations are less attention grabbing, they should nonetheless be increased to help normalize vaccines and reduce the uncertainty surrounding the vaccination debate. In addition, since the world has not experienced major pandemics for a long time, there is a sort of generational loss of memory of the basics of public health and the importance of vaccination. It is therefore important, through historical and evocative social marketing, to remind people how vaccines have successfully eradicated certain diseases.

Fourth, our data shows that anti-vaxxers have some difficulty understanding all the numbers related to vaccination (specifically the small ones). For example, the odds of suffering a serious side effect from a COVID-19 vaccine is approximately 1 in 25,000 and a non-serious side effect is 1 in 3000. In comparison, the odds of dying from COVID-19 are 1 in 50. When explained in this way, the odds in favor of the vaccine seem much higher, yet no vaccination campaigns juxtapose the probability of vaccine side effects alongside disease fatality rates. Perhaps, because 1 in 25,000 (or even 1 in 3000) is still difficult to comprehend. Instead, the average person hears that six people died after the deliberate injection of a vaccine, which has been developed using new technology, produced faster than any vaccine that has ever been developed in history. It is, therefore, necessary to exhibit great pedagogy when it comes to communicating very small numbers to ensure that they will be correctly interpreted. Analogy and visual displays can be very useful pedagogical practices when communicating about numbers outside of human perception. Resnick et al. (2017) also suggest the benefit of hierarchical alignment, i.e. presenting the different numbers in a hierarchical way to help individuals make sense of very small numbers that may appear similar but are in fact very different.

5.3 Limitations and directions for further research

This study has several limitations that deserve further research. First, we have studied the motivations of anti-vaxxers in one single context, namely France. While this choice was motivated by the fact that France is historically a country in which the anti-vaccination movement is very active (Vignaud & Salvadori, 2019), future research could seek to replicate this study in other contexts. More specifically, it would be interesting to compare the motivations of the arguments of anti-vaxxers coming from a country rather opposed to vaccines like France with a country globally favorable to vaccinations like Spain in Europe (Lazarus et al., 2021) or Bangladesh, Ecuador, and Iran (Larson et al., 2016).

Second, even if conspiracy theories sometimes emerged in the background during our study, they did not constitute the heart of our investigation. However, just as we believe that knowing the motivations of people refusing the COVID-19 vaccine should be the first step to respond appropriately, we also believe that understanding conspiracy theories and how they spread should help counter them more effectively. Future research could thus mobilize an ethnographic approach to better understand online communities centered around conspiracy theories.

Third, our study being exploratory by nature, we mobilized a qualitative approach by in-depth interviews. However, future studies could test in a conceptual model or through experiments the relationships suggested in our research. For instance, what is the impact of COO and branding on the intention to be vaccinated? Likewise, the model could incorporate a number of socio-demographic and psychological moderators which would help better explain what leads to the refusal to be vaccinated. All these elements could add some additional insights about our understanding of anti-vaxxers and the vaccine hesitant.

Finally, even though this study focuses specifically on COVID-19 vaccine hesitancy, it is likely that the findings could apply to future vaccines and vaccination programs. We have shown that the non-consumption of vaccines arises from stable factors and contextual factors. Stable factors, i.e. resistance to vaccination because of an ideological opposition, are factors that will be found in each vaccination campaign and that the authorities can therefore anticipate. Conversely, contextual factors are specific to each vaccination program. Hence continued monitoring of the stories around future vaccines would be beneficial as would the addition of branding and COO effects to future quantitative studies of vaccine acceptance and hesitancy.
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DATA AVAILABILITY STATEMENT
The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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