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Partisanship predicts COVID-19 vaccine brand preference: the case of Argentina

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The COVID-19 pandemic underscored the significance of overcoming vaccine adoption resistance and addressing real and perceived barriers for efficient vaccination campaigns. One major problem faced by health systems around the world was that people's preferences for a specific brand of vaccine often delayed vaccination efforts as people canceled or delayed appointments to receive their preferred brand. Therefore, in the event of another pandemic, it is important to know which factors influence preferences for specific vaccine brands. Previous literature showed that consumers choose products that are congruent with their self-concept, which includes their political affiliation. Given that the discourse around vaccine brands has been strongly politicized during the pandemic, in our work, we test whether partisanship influences preferences for COVID-19 vaccine brands. To test this, we collected survey data from Argentina ($N = 432$), a country with a clear bi-partisan structure and where a variety of vaccine brands were administered, both from Western and Eastern laboratories. We found that supporters of the ruling party, which had strong ties with Eastern countries such as Russia and China, perceived Eastern vaccine brands (e.g., Sputnik V) to be more effective and safer than Western ones (e.g., Pfizer) whereas the contrary was true for supporters of the opposition. Our results also showed that supporters of the opposing party were more likely to wish to hypothetically switch vaccines, to delay their appointment in case of not receiving their preferred brand, and to disapprove of their local vaccination campaign. Our results demonstrate that political party affiliation biases perceptions of both vaccine brands' quality and vaccination campaign effectiveness. We anticipate that our results can inform public policy strategies when it comes to an efficient vaccine supply allocation, as political affiliation is a measurable and predictable consumer trait.

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Introduction

Vaccine adoption has always been a problem that behavioral scientists deemed important to study (Piltch-Loeb & DiClemente, 2020; Paul, Steptoe & Fancourt, 2021). However, the Coronavirus pandemic highlighted the need to study not only the factors promoting adoption in general but also those that could speed up vaccination campaigns that are time-sensitive (Bollyky et al., 2022; Bruine de Bruin et al., 2022). For example, despite continuous efforts to discourage consumers from seeking out specific COVID-19 vaccines brands, a report from the Centers for Disease Control and Prevention of the United States (CDC) issued in March 2021 indicated that consumers were still actively seeking out brands and canceling appointments whenever they were offered a brand they did not want (CDC, 2021). Public health authorities are aware that vaccine controversies, and vaccine resistance more generally, undermine collective wellbeing, and the COVID-19 pandemic highlighted the need for research studying factors that can increase vaccine adoption more generally (Dubé et al., 2021).

Brewer et al. (2017) formulated the “Increasing Vaccination Model” suggesting that on the one hand thoughts and feelings (e.g., confidence in vaccine effectiveness), and on the other hand social processes (e.g., social norms), are associated with people’s motivation to get vaccinated. Nevertheless, motivation is not enough to get people to vaccinate when practical barriers are also perceived (e.g., low vaccine availability). In fact, when individuals encounter friction, such as the unavailability of the vaccine brand they want, they will not get vaccinated despite their initial motivation.

In this research, we propose that, in a not so unlikely event of another pandemic (Marani et al., 2021; Ruggeri et al., 2022), one factor that could help diminish resistance and promote fast vaccine adoption, is the ability to foresee consumers’ brand preferences based on measurable characteristics like political party affiliation. As such, we propose and test that consumers’ political party affiliation influences their perceptions of both vaccines’ safety and effectiveness, depending on their brand and manufacturer. Moreover, we show that consumers’ partisanship also alters their perception of the existence of practical barriers to vaccinations (i.e., overall management of the pandemic).

Theoretical framework

Vaccine brand preference during COVID-19. Brand preference refers to the choice of a particular brand based on one’s own tastes when exposed to other products of the same type (Hellier et al., 2003). Researchers in marketing and consumer psychology over the years have been interested in brand choice and the drivers behind this behavior. According to Quevedo and Gopalakrishna (2021), brand choice (and preference) not only derives from purely rational decision-making, but also from the combination of multiple other factors such as intuition, sensation, and emotion. Additionally, previous research shows that people behave according to the vision they have of themselves. In particular, congruence in self-concept has a positive effect on the preference for a certain brand, so people tend to choose brands that are capable of representing or expressing one’s own self-concept (Aaker, 1997; Sirgy, 1982; Tsai et al., 2015). For the same reason, consumers will choose not to purchase a brand when it represents an undesired self or a group they do not identify with (Englis & Solomon, 1995; Hogg & Banister, 2001).

Hughes et al. (2021) found that individuals may choose to get vaccinated when the vaccine options meet their personal preference around brand-specific attributes, such as the number of doses required, concerns about side effects, religious objections, and even misinterpretations about a specific brand. Therefore,

when considering a strategy for vaccine campaign uptake, it is important to consider not only a general vaccination behavior approach (getting people to accept a vaccine) but also to building positive brand identity as the behavior occurs in a context of brand competition (getting people to accept the brand of vaccine they are given).

During the COVID-19 campaign, there were multiple vaccine brands being commercialized and, in that scenario, it was likely that uptake depended also on the brand characteristics and brand equity of the offered products (Evans & French, 2021) rather than just their documented effectiveness. Brands create connections between customers and their products by promoting beneficial transactions and enhancing their products. In this sense, an effective branding campaign needs to frame a consumer’s options and develop an identity that encourages brand preference over alternatives. In the health area, this includes both products (such as a vaccine) and behavioral change (e.g., choosing to get vaccinated) (Evans et al., 2015). Also, choosing one product over another involves comparing costs and benefits, overcoming barriers to purchase, adoption, and the value associated with the product (Evans & Hasting, 2008). In the context of COVID-19 vaccination, this could impact whether a population stands for vaccination uptake or is resistant to it as it occurs in the marketplace of ideas. According to Evans & French (2021), exposure to the COVID-19 promotional campaign (e.g., consumption of advertisements) causes changes in vaccine beliefs and intentions, which in turn facilitate vaccine uptake.

Despite the fact that the majority of consumers wanted to get vaccinated against COVID-19 and understood its importance, a problem many countries were facing was the delay in vaccination campaigns due to vaccines’ brand preference. An article published by the BBC (McClay, 2021) stated that United States citizens were becoming “choosy” about which vaccine they received, preferring Pfizer and Moderna over Johnson and Johnson, even refusing to receive the vaccine if their favorite one was not available. Also in Canada, Merkley and Lowen (2021) found considerably more reluctance to take the AstraZeneca and Johnson & Johnson vaccines compared to those from Pfizer and Moderna, despite all vaccines being approved and deemed safe and effective by a federal regulator. In most cases, journalists blame consumer choosiness on the statements of some public officials. For example, McClay (2021) mentions Detroit’s mayor’s refusal of the Johnson & Johnson vaccine, claiming he wanted “the best” (Pfizer and Moderna) for his city residents. Similarly to this, numerous researchers are now starting to empirically analyze both mass media and political discourse occurring during COVID-19 to show how they might have distorted public perception of different types of vaccines, shifting the focus from safety and effectiveness towards more irrational factors such as political beliefs or interests (Abbas, 2020, 2022).

Overall, it is important to understand what might guide individuals’ behavior in the context of choosing to wait to get a specific vaccine. As a commentary piece on vaccine adoptions says “In presenting results on the public’s view of various vaccines, it is important to acknowledge that the public is not, as a whole, a scientific expert and public judgments can never substitute for clinical trials. But public beliefs matter, because they guide behavior.” (Lacsa, 2022).

Political identity, consumer behavior, and vaccine preference
Influence of political identity and partisanship on brand evaluation and belief biases. There is ample evidence that political identity affects consumer choices (Jung & Mittal, 2020) and that partisanship can indeed influence the evaluation of a brand,

including, for example, that of television channels (Bayo-Moriones et al., 2015). Additionally, an advertisement's activation of one's political affiliation can either change or reinforce brand loyalty. For instance, in Hoewe, Hatemi (2016) study, U.S. students who self-reported as conservative responded to the presence of Muslim and Arab actors in a Coca-Cola advertisement by selecting Pepsi products despite their initial preference for Coca-Cola; whereas, liberal students maintained their initial brand loyalty to Coca-Cola regardless of the advertisement shown either featuring Americans or Arab actors. Consumers also respond to design changes and marketing strategies based on their political affiliation. Research shows that conservatives (as opposed to liberals) tend to think more intuitively, and they like symmetrical (vs. asymmetrical) designs because they are easier to process (Northey & Chan, 2020). Moreover, conservatism has also been associated with a systematic preference for established national brands rather than their generic counterparts (Khan, Misra & Singh, 2013).

Previous studies also pointed out the existent link between belief bias and partisanship, for example, in Aspernäs, Erlandsson & Nilsson's study (2022) political affiliation predicted response accuracy for syllogisms and participants evaluated more syllogisms correctly when the target response was congruent with their political affiliation. People believe that co-partisan individuals are better at solving cognitive tasks, even if those tasks have nothing to do with politics (Marks et al., 2019), and also tend to defend their own pre-existing beliefs (ego-justify) and their group beliefs (group-justify) (Jost, Baldassarri & Druckman, 2022). This is not surprising as partisanship functions as a social identity (West & Iyengar 2022), where the categorical boundaries between in-group and out-group are defined. Whenever individuals feel that their political identity is threatened, they might take part in destructive social psychological processes over the out-group (e.g., prejudice) and various forms of motivated reasoning appear (e.g., selective information exposure, confirmation bias) in order to reduce cognitive dissonance and to protect the in-group identity (Jost et al., 2022). Moreover, people are more prone to believe news that support their political affiliation than those that do not, and this might be due to failure to pause and reflect on the veracity of what they read in the media, making them unable to distinguish between truth and fiction (Pennycook & Rand, 2021). As such, we posit that politicization of COVID-19 vaccines discourse impairs consumers' decision-making in favor of protecting their own political identity and prompts them to act consistently to what their preferred political party seems to prefer.

Political identity influence on COVID-19 vaccination and health-related behaviors. In line with the reasoning so far, but extending into the health-related domain, previous studies have demonstrated that political ideology consistently predicts both willingness to be vaccinated and vaccine hesitancy (Killgore et al., 2021). For example, in several studies, respondents who self-identified as liberal exhibited higher rates of vaccine hesitancy than conservative respondents (Fridman et al., 2021; Gerretsen et al., 2021; Milligan et al., (2022); Park et al., 2021). Previous studies have shown that trust in government affects people's probability of getting vaccinated (Viskupič, Wiltse & Meyer, 2022). Indeed, in the context of the US Democratic government, Republican counties exhibited lower vaccination rates compared to Democratic counties (Ye, 2023). Additionally, Pink et al. (2021) conducted an experiment in which unvaccinated Republican participants displayed increased vaccination intentions after viewing a video featuring Donald Trump endorsing vaccination, as opposed to a Democrat endorsing the same. Notably, the relationship between partisanship and vaccination rates in the United Kingdom diverges from that in the United States, with

conservatives exhibiting higher vaccination rates compared to Labor supporters. This suggests that right-leaning individuals may be more inclined to vaccinate when their political party holds power and supports vaccination (Klymak & Vlandas, 2022). Furthermore, in South Korea, Park and colleagues (2021) found that even after controlling for vaccine safety and COVID-19 risk perceptions, individuals' self-rated political ideologies and trust in the government remained associated with vaccine hesitancy. While the relationship between partisanship and vaccine adoption has been previously reported, the effect of partisanship on brand preference remains unknown. Addressing this gap in the literature could prove instrumental in assisting policymakers in overcoming barriers to expediting vaccination rates in the event of a future pandemic.

Moreover, a previous study conducted across Argentina, Uruguay, Brazil, and the United States has shown that partisanship was the most important indicator of the degree of support for COVID-19 policies (Freira et al., 2021). In line with these findings, Gelfand et al. (2022) have demonstrated the influence of partisanship on health-related behaviors, such as wearing masks or face coverings. Specifically, they observed that Republicans (the opposition party during the pandemic) displayed more negative attitudes toward COVID-19 prevention measures compared to Democrats (the ruling party during the pandemic). Finally, research also showed that national identity predicts people's public health support more generally, extending to compliance with lockdown mandates (Van Bavel et al., 2022).

Politicization of COVID-19 vaccines and the influence of country of origin. Politicization of COVID-19 vaccines also manifested as leaders of different countries have openly denigrated vaccines developed in countries such as China and Russia, which led to greater rejection of such vaccines among their supporters (Gramacho & Turgeon, 2021) and the country of origin of vaccines has been shown to be associated with willingness to get vaccinated (Dror et al., 2021; Kawata & Nakabayashi, 2021; Mirzaee et al., 2021; Motta, 2021). For example, Motta (2021) found that US adults prefer vaccines that are US-made. Evans and French (2021) in their proposed model of demand creation for COVID-19 vaccines mention that inequalities in vaccine supply and uptake between countries are not only to be attributed to countries' power or wealth but also to brands manufactured in trusted countries or manufactured in one's own country as means to promote national production. Following the reasoning above, we hypothesize that brand preference will depend on whether the vaccine brand and producing country are supported by one's political party (Sandıkçı & Ekici 2009).

The Argentinian context allows us to test the predictions we formulated throughout our literature review. In particular, Argentina provided us with an opportunity to study how political party affiliation affects COVID-19 vaccine brand choice for two main reasons. First, the country has a clear bi-partisan structure (Lupu & Stokes, 2009). There are two main political parties: Frente de Todos (center-left to left-wing; abbreviated as FT), which was in power during the pandemic, and Juntos por el Cambio (center to center-right; abbreviated as JxC) that, among others, constitutes their main political opposition. The second main reason to focus on Argentina is that it is a country where a wide variety of vaccines was and is available, including those produced by both Eastern laboratories (e.g., Sputnik V and Sinopharm) and Western laboratories (e.g., Pfizer and Moderna). Argentina stands out as one of the few countries that exhibit a combination of both a bi-partisan political structure and the availability of Eastern and Western COVID-19 vaccines. While it is true that several countries have experienced a bi-partisan structure during the pandemic, and many have had access to a

diverse range of vaccines, a meticulous analysis of the intersection between a bi-partisan structure and the availability of both Eastern and Western vaccines reveals that only 15 countries worldwide possess this unique combination of characteristics (Vaccination Rates, Approvals & Trials by Country - COVID-19 Vaccine Tracker, 2022), making Argentina a compelling case study to test our effect of interest.

Furthermore, Argentina's case becomes even more compelling when considering the significant role that the country of origin of COVID-19 vaccines played in the political discourse. When the vaccination campaign began, the Sputnik V vaccine was the first one to arrive to Argentina thanks to the political ties that the ruling party of FT has with Russia (Dinatale, 2019; Ministerio de Relaciones Exteriores, Comercio Internacional y Culto, 2020). At the same time, their political opponents, JxC said they mistrusted the Sputnik vaccine (Mutuverria & Roldán, 2021; Serra, 2020), and several citizens and/or companies paid (for their employees) expensive tickets to travel to the US to get Pfizer (Blanco, 2021).

Dependent variables and hypotheses. The general aim of this study is to test the hypothesis that political affiliation biases the perceived effectiveness and safety of different COVID-19 vaccine brands, as well as the perception of how well the vaccination campaign is being executed. As we mentioned, previous studies had centered on the relationship between partisanship, vaccine hesitancy, and campaign perception, but no previous studies had studied the link between partisanship and brand preference for COVID-19 vaccines.

To investigate preferences for Eastern and Western vaccine brands, we employ two approaches. Firstly, we measure participants' perceptions of safety and effectiveness as they are two variables that play a crucial role in shaping vaccine confidence and acceptance (Wagner et al., 2021). It is worth noting that safety and effectiveness are quantitatively measured in clinical studies (Liu et al., 2021). As a result, divergences in participants' ratings regarding safety and effectiveness serve as an accurate reflection of genuine biases influenced by their partisan affiliation.

Secondly, we focus on willingness to hypothetically switch the brand of the vaccine one has received or willingness to refuse to receive a brand one does not like. Given the unique circumstances surrounding the COVID-19 pandemic where individuals did not have the freedom to choose their preferred vaccine, as a proxy of vaccine preference, we adopt a hypothetical approach. For vaccinated participants, we examine their willingness to hypothetically switch from the vaccine brand they received to another brand of their choice. By analyzing this stated willingness to switch, we can gain insights into individuals' genuine brand preferences. Similarly, for non-vaccinated participants, we investigate their stated willingness to refuse a vaccine if their preferred brand is not available.

Given that the ruling party of Frente de Todos (FT) had political ties with Russia and China (i.e., Eastern countries) at the time of the COVID-19 pandemic, our specific hypotheses regarding brand preferences in Argentina are:

H1: Frente de Todos (FT) supporters will perceive Eastern vaccines to be more effective and safer, whereas Juntos por el Cambio (JxC) supporters will perceive Western vaccines to be more effective and safer.

Furthermore, given that in Argentina the majority of vaccines available and distributed are the Eastern ones, we also expect that:

H2: Frente de Todos (FT) supporters will express a lower willingness to switch vaccine brands, as compared to Juntos por el Cambio (JxC) supporters.

H3a: The willingness to switch to an Eastern vaccine will be higher for Frente de Todos (FT) supporters compared to Juntos por el Cambio (JxC) supporters, and the opposite will be observed for the willingness to switch to a Western vaccine.

H3b: The willingness to refuse a non-preferred vaccine brand will be higher for Juntos por el Cambio (JxC) supporters compared to Frente de Todos (FT) supporters.

Furthermore, the evidence reviewed so far points to the fact that rejection and acceptance of vaccines do not only depend on the brand itself but also on the acceptance of the government's management of the broader COVID-19 campaign, which will also be influenced by one's own political identity and affiliation (Freira et al., 2021). We expect that supporters from different parties would have different perceptions about the campaign based on whose political party is managing it. The evidence we reviewed in our theoretical framework on how political identity biases people's judgments (Aspernäs et al., 2022; Jost et al., 2022; Marks et al., 2019; Pennycook & Rand, 2021), leads us to predict that Frente de Todos (FT) supporters will approve and have a more positive perception of the campaign compared to Juntos por el Cambio (JxC) supporters. For example, we expect a positive perception of the campaign to be reflected by the satisfaction with the vaccine one has received, the perceived ease of scheduling one's vaccine appointment, the perceived availability of vaccines in one's area, self-reported eagerness to get vaccinated, and the perceived importance and helpfulness of vaccination in general. In particular, we hypothesize that:

H4a: Frente de Todos (FT) supporters will express a higher satisfaction with the vaccine they received as compared to Juntos por el Cambio (JxC) supporters.

H4b: Frente de Todos (FT) supporters will perceive a higher ease of scheduling a vaccination appointment as compared to Juntos por el Cambio (JxC) supporters.

H4c: Frente de Todos (FT) supporters will perceive a higher availability of vaccines in their area as compared to Juntos por el Cambio (JxC) supporters.

H4d: Frente de Todos (FT) supporters will express a greater eagerness to get vaccinated as compared to Juntos por el Cambio (JxC) supporters.

H4e: Frente de Todos (FT) supporters will perceive vaccination in general to be more important and helpful as compared to Juntos por el Cambio (JxC) supporters.

Methods

The aim of this work was to empirically test the interplay between partisanship, COVID-19 vaccine's brand perception, and preference. To test our hypotheses, we ran an online survey to collect data in Argentina from July 27th to August 4th, 2021. The data were obtained from Wonder, a consulting firm that employs a panel of subjects across the country who voluntarily fill out short surveys online in exchange for cash prizes and other rewards. The panelists were selected based on our sampling criteria, consisting of three quotas: not vaccinated, partially vaccinated (one dose or two doses less than two weeks ago), and completely vaccinated. Our study employed a quantitative cross-sectional design and data were cleaned and analyzed with RStudio. Our protocol was approved by the ethics committee of CEMIC (Centro de Educación Médica e Investigaciones Clínicas Norberto Quirno).

We collected data from 450 participants, some of whom did not meet the inclusion criteria of our study, leading to a final sample size of 432 (96%) participants (49.54% Female; $M_{age} = 44.6$; see Table 1). Before answering the survey, participants completed an informed consent for their participation. The full questionnaire and data are posted at https://osf.io/wg6ht/?view_only=694fed9299bf40b59af9353be122f8ec.

Table 1 Main Characteristics of Survey Participants.

	Overall (N = 432)
Gender	
Men	218 (50.5%)
Women	214 (49.5%)
Age	
Mean (SD)	44.6 (15.9)
Median [min, max]	44.0 [18.0, 90.0]
Vaccination status	
Not yet vaccinated	132 (30.6%)
Partly vaccinated	150 (34.7%)
Fully vaccinated	150 (34.7%)
Political affiliation	
Frente de Todos (FT)	82 (19.0%)
Independent, neither party	141 (32.6%)
Juntos por el Cambio (JxC)	133 (30.8%)
Prefer not to say	76 (17.6%)

This table displays the percentage of participants by gender, vaccination status, and political affiliation, as well as the minimum, maximum, mean, median, and standard deviation of their age.

Table 2 Vaccines Brands Administered to the Subset of Vaccinated Participants.

	Partially Vaccinated (N = 150)	Fully Vaccinated (N = 150)	Overall (N = 300)
Vaccine Brand			
Pfizer	0 (0%)	3 (2.0%)	3 (1.0%)
Johnson & Johnson	1 (0.7%)	0 (0%)	1 (0.3%)
AstraZeneca	52 (34.7%)	25 (16.7%)	77 (25.7%)
Sputnik V	51 (34.0%)	47 (31.3%)	98 (32.7%)
Covishield	8 (5.3%)	12 (8.0%)	20 (6.7%)
Sinopharm	35 (23.3%)	61 (40.7%)	96 (32.0%)
Don't know	2 (1.3%)	0 (0%)	2 (0.7%)
Other (not specified)	1 (0.7%)	2 (1.3%)	3 (1.0%)

This table displays the frequencies and percentage of vaccine brands administered to both fully and partially vaccinated participants.

First, survey participants answered some questions about their perception of the effectiveness and safety of each of the vaccines being administered at that time in Argentina (1 = not at all safe/effective; 7 = very much safe/effective) and other vaccine campaign related questions, for example, how easy is it to get an appointment where you live? (1 = very difficult; very easy) or when did you get your first/second dose? Then they responded with how satisfied they were with the vaccine they received and which vaccine they would choose if they could go back in time. Furthermore, they were asked to report their political affiliation (1 = Strongly FT; 7 = Strongly JxC). Finally, we collected their sociodemographic information.

In order to test our first hypothesis, we created a composite variable by splitting the vaccines according to their origin, such that Pfizer, Moderna, Johnson & Johnson, and AstraZeneca were coded as Western and Covishield, Sinopharm, and Sputnik V were coded as Eastern (for a review of vaccines administered in our sample, please refer to Table 2). Moreover, we created a categorical variable to group our survey participants into either Frente de Todos (FT; from 1 = Strongly Frente de Todos to 3 = Lean toward Frente de Todos) or Juntos por el Cambio (JxC;

from 5 = “Lean toward Juntos por el Cambio to 7 = Strongly Juntos por el Cambio) supporters, as well as into a category of those who claim to support neither (4 = Independent, neither party) and those that preferred not to say (8 = Prefer not to say). Then, we conducted a two-way mixed analysis of variance (ANOVA) where the vaccine’s brand origin (Western vs. Eastern) and partisanship (FT vs. JxC) were the independent variables, and perception (effectiveness or safety) was the dependent variable.

To test our second and third hypotheses, a chi-square test was performed to determine whether the proportion of vaccinated participants who would switch brands if they could or the proportion of unvaccinated participants who would refuse a non-preferred vaccine was equal between the two parties.

To test our set of fourth hypotheses, we ran several ANOVAs where political affiliation (FT vs. JxC) was the independent variable and campaign support questions (e.g., satisfaction with vaccine received or ease of getting an appointment) were the dependent variables.

Results

Does partisanship have an effect on brand perception? We conducted a two-way mixed ANOVA to test our hypothesis. As expected for H1, we found a statistically significant interaction ($F(108, 15408) = 4.47, p < 0.001, \eta^2 = 0.007$) and post-hoc analyses revealed that FT’s supporters perceive Eastern vaccines to be more effective and safe ($M_{\text{effective}} = 5.37, SD = 1.50; M_{\text{safe}} = 5.44, SD = 1.49$) than JxC supporters do ($M_{\text{effective}} = 4.45, SD = 1.35; M_{\text{safe}} = 4.38, SD = 1.33$) as depicted in Fig. 1, Panel C and D. On the contrary, JxC’s supporters perceive Western vaccines to be more effective and safe ($M_{\text{effective}} = 5.31, SD = 1.26; M_{\text{safe}} = 5.16, SD = 1.31$) than FT supporters do ($M_{\text{effective}} = 4.90, SD = 1.49; M_{\text{safe}} = 4.95, SD = 1.56$) as depicted in Fig. 1, Panel A and B.

Does partisanship influence brand preference? Given that in the context of COVID-19 citizens could not willingly choose which brand to get vaccinated with, we conducted a chi-square test to compare the reported willingness to switch to another brand as a proxy for participants’ true brand preference. According to our expectations for H2, the proportion of those who wanted to switch was lower for FT supporters than it was for JxC supporters ($\chi^2(3, 300) = 38.52, p < 0.001$) and post-hoc analysis revealed significantly different values ($p < 0.001$) for all four conditions (Fig. 2, Panel A). As we expected for H3a, when observing willingness to change not only by political affiliation but also by vaccine origin, the chi-square test revealed that FT supporters tended to report they wanted to switch to Eastern vaccines when they received Western ones and the opposite was true for JxC supporters ($\chi^2(18, 182) = 48.34, p < 0.001$; Fig. 2, Panel B). Moreover, supporting our H3b, a chi-square test revealed a significant difference between the proportion of those who reported a higher likelihood to refuse a non-preferred vaccine by political affiliation ($\chi^2(6, 128) = 29.77, p < 0.001$). Namely, fewer FT supporters than expected reported that they would refuse the vaccine if it is not the one they wanted ($p < 0.001$).

Does partisanship influence vaccination campaigns support?

As expected for our H4a, an analysis of variance showed that the effect of partisanship on satisfaction with the vaccine they received was significant ($F(3, 296) = 12.76, p < 0.001$) and post-hoc analyses revealed that FT’s supporters were more satisfied with the vaccine they received than JxC supporters. Also, in support of H4b, when comparing the perception regarding the ease of scheduling a vaccine appointment we found a significant effect of partisanship on this perception ($F(3, 428) = 7.72, p < 0.001$), post-hoc analyses revealed FT participants perceived greater ease of getting an appointment as compared to JxC ones.

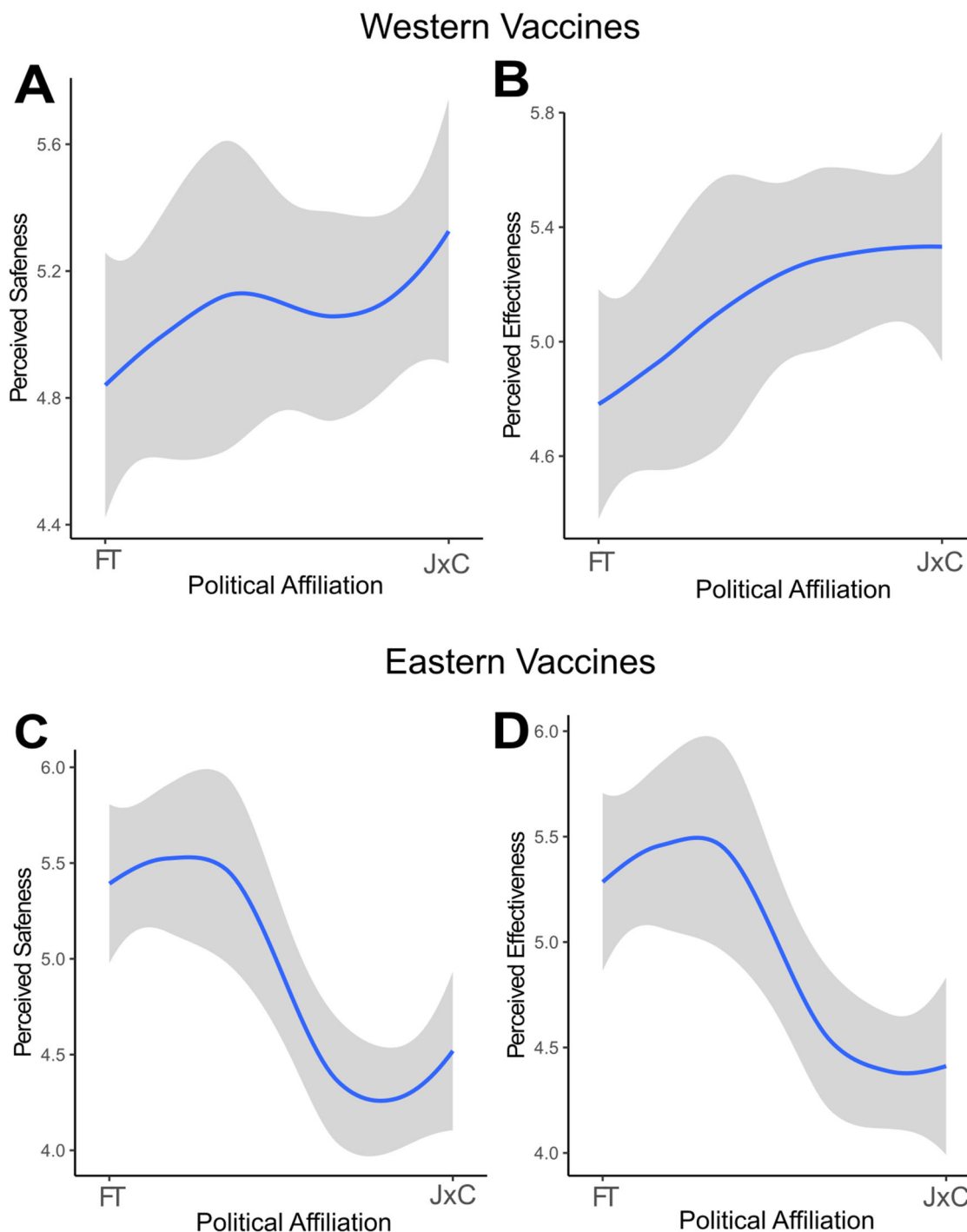


Fig. 1 Perceived safeness and effectiveness. Relationship between perceived safeness and perceived effectiveness of Western (A and B) and Eastern (C and D) vaccines and respondents' political affiliation.

Furthermore, a statistical difference between groups was also observed when participants answered how available vaccines were where they lived ($F(3, 428) = 11.42, p < 0.001$), which provides support for H4c. Participants from FT perceived vaccines as more available than JxC participants. As predicted by H4d, when comparing how strongly participants wanted to get a vaccine, an effect of partisanship was observed in both the ones who had already received the vaccine ($F(3, 296) = 3.86, p < 0.01$) and the ones who were not yet vaccinated ($F(3, 128) = 5.43, p < 0.01$). Finally, in line with H4e, the effect was also observed when they were asked how important ($F(3, 428) = 8.64, p < 0.001$), and how

helpful they considered vaccines to be ($F(3, 428) = 11.2, p < 0.001$). Post-hoc analyses revealed that FT supporters had a greater desire to get vaccinated and considered it to be more important and helpful than JxC supporters did. To see a summary of our ANOVAs results, as well as all means and standard deviations, please refer to Table 3.

Discussion

This research studied the interplay between COVID-19 vaccine brand perception and partisanship. We focused this analysis on

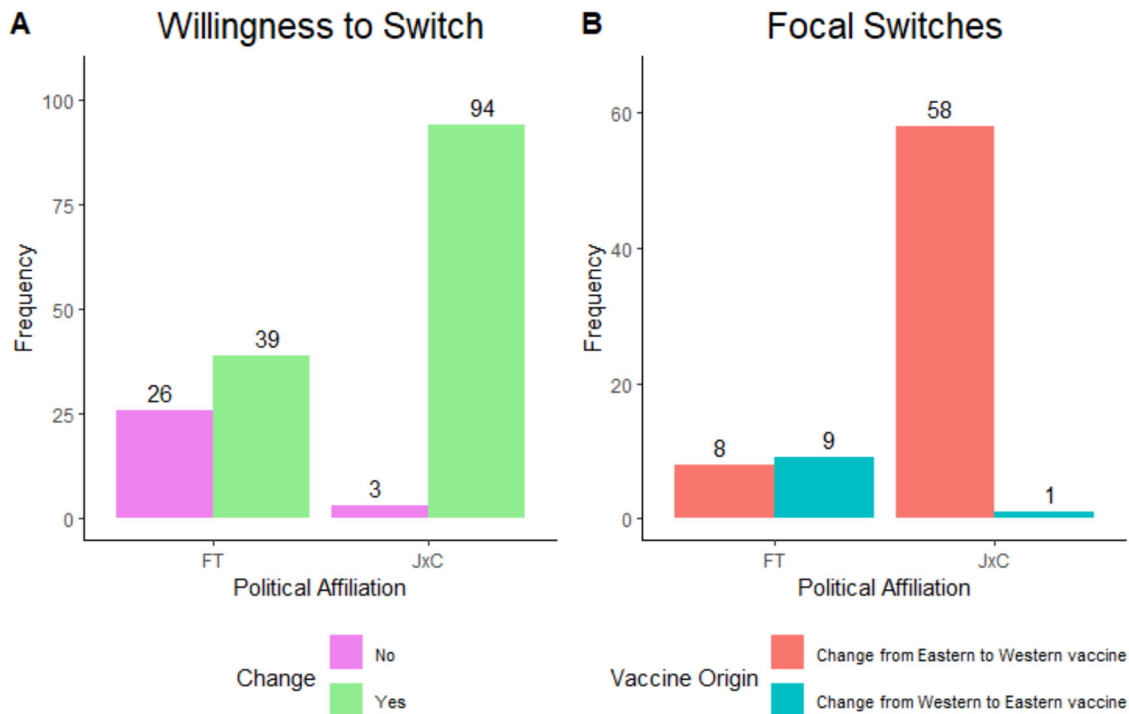


Fig. 2 Intention to switch. Stated intention to switch the vaccine based on Partisanship (A) and based on Partisanship by Vaccine’s Country of Origin (B). In (B), we only report the focal stated changes that allow us to test our hypothesis. To see all other non-focal changes, please refer to Fig. S1, Supplementary Information.

Table 3 Means, Standard Deviations, and One-Way Analyses of Variance in Campaign Support Questions.

Measure	All participants					
	Frente de Todos (FT)		Juntos por el Cambio (JxC)		F(3428)	η^2
	M	SD	M	SD		
Important (H4e)	6.63	1.17	6.17	1.56	8.64***	0.05
Helpful (H4e)	6.66	1.09	6.16	1.53	11.2***	0.07
Appointment (H4b)	5.91	1.55	4.88	1.76	7.72***	0.05
Availability (H4c)	5.68	1.31	4.56	1.49	11.42***	0.07
Measure	Vaccinated					
	Frente de Todos (FT)		Juntos por el Cambio (JxC)		F(3296)	η^2
	M	SD	M	SD		
Satisfaction (H4a)	6.45	1.30	4.96	1.81	12.76***	0.11
Wanted vaccine (H4d)	6.60	1.07	5.92	1.74	3.86**	0.04
Measure	Unvaccinated					
	Frente de Todos (FT)		Juntos por el Cambio (JxC)		F(3128)	η^2
	M	SD	M	SD		
Want vaccine (H4d)	5.18	1.98	3.97	1.93	5.43**	0.11

***p < 0.001 **p < 0.01.

Argentina, a country with two major political parties (Lupu & Stokes, 2009) and where the vaccination campaign offered a wide variety of vaccines produced by both Eastern and Western laboratories. We observed that supporters of the ruling party in

Argentina (FT) preferred Eastern vaccines, whereas the supporters of the opposing party (JxC) preferred Western vaccines and had different biased perceptions of the vaccines’ safety and effectiveness. This demonstrates that consumer behaviors, such as brand perception and brand choice, can be affected by symbolic meanings (Mandel et al., 2017) even in the context of a major healthcare crisis.

Supporting our hypothesis, the present findings suggest that political affiliation has an impact on vaccine brand preferences and perceptions of vaccination campaigns’ management. In particular, we found that partisanship and country of origin of COVID-19 vaccines jointly predict consumers’ perceptions. While FT supporters perceive Eastern vaccines to be more effective and safer as compared to JxC supporters, the opposite occurs for Western vaccines. This aligns with previous research indicating that political affiliation impacts consumers’ brand evaluation (Bayo-Moriones et al., 2015, Park et al., 2021), which may be also attributed to the fact that individuals select brands that align with their own self-concept (Aaker, 1997; Sirgy, 1982; Tsai et al., 2015). These results suggest that tribal motives can influence public perceptions of vaccines, potentially overriding the influence of epistemic information regarding their safety and effectiveness (Pinedo & Villanueva, 2022). Future studies should examine how these biased perceptions relate to partisan effects on other attitudes and behaviors including trust in science (Sulik et al., 2021) and belief in medical misinformation (Khullar, 2022).

In the initial stages of the vaccination campaign, vaccine availability determined the administered brand, and individuals did not have the option to choose. Thanks to the political ties of the ruling party with Russia and China, the majority of the vaccines distributed early in the campaign were Eastern (Dinatale, 2019; Ministerio de Relaciones Exteriores, Comercio Internacional y Culto, 2020). Consistent with research that suggests political affiliations shape brand perceptions, FT supporters were more satisfied with the vaccine they received. Regarding

hypothetical brand switches, a larger proportion of supporters of the opposition party (JxC) expressed a desire to switch to a different vaccine. Notably, we also observed that JxC supporters would switch from Eastern to Western vaccines, while FT supporters displayed the opposite inclination. Similarly, a larger number of FT supporters reported that they would not refuse the vaccine if they were offered one that was not from their preferred brand, suggesting a higher level of compliance. These findings align with prior research demonstrating that consumers may avoid purchasing a brand that represents a self or group they do not identify with (Englis & Solomon, 1995; Hogg & Banister, 2001). This has important implications as vaccine hesitancy can arise when individuals are not offered the vaccine they prefer (Brunson et al., 2021).

Moreover, it was found that government supporters (FT) perceived a greater ease of obtaining vaccination appointments, higher vaccine availability, greater personal desire to get vaccinated, and considered vaccination to be more important and useful as compared to supporters of the opposition. These findings are consistent with previous associations found between vaccine hesitancy and self-rated political ideologies and government trust (Park et al., 2021).

We believe these results are relevant not only to academics, providing new findings in the consumer psychology literature, but also to policymakers seeking to diminish resistance and promote fast vaccine adoption. By showing that partisanship is a key indicator of vaccine brand preference, our findings point out the necessity to foresee this situation to speed up vaccination in the event of a future pandemic.

As previous literature suggests, thoughts and feelings (i.e., vaccines perception) as well as perception of practical barriers (i.e., difficulty to get an appointment) can have an impact on people's decision to not getting vaccinated (Brewer et al., 2017). Considering brand characteristics and brand equity of the offered products along with building brand image might be a useful intervention to curb vaccine hesitancy (Evans & French, 2021). Also, political ideology is a crucial variable when foreseeing both willingness to get vaccinated and vaccine hesitancy, acting as a predictor of both positions (Killgore et al., 2021). Additionally, considering measurable consumer characteristics when deciding a vaccine distribution strategy might increase vaccination rates and can be used strategically to expedite the process, as they can either act as a catalyst or obstacle.

It should be noted that this study is not without its limitations. Firstly, as participants were not selected based on their political party affiliation, the number of participants between the major groups (FT and JxC) was not equivalent, and we recruited a higher number of JxC supporters (Table 1). However, we took measures to address the imbalance by running both parametric and non-parametric tests for relevant hypotheses. After conducting these additional analyses, we found that the results remained unchanged, supporting the robustness of our findings. For a more in-depth examination of the statistical procedures, we invite readers to refer to the script of the analyses available online. Additionally, it is worth noting that we only considered the two major political parties in Argentina, and the results may not necessarily extrapolate to supporters of relatively minor political platforms. Future studies should account for these other political minorities to provide a more comprehensive analysis. Secondly, at the time of data collection, the Western vaccine most administered in Argentina happened to be AstraZeneca whereas Pfizer and Moderna were widely unavailable as reflected in our sample (Table 2). However, the administered brand was a focal variable only for one out of our many hypotheses (H3a). Thirdly, previous studies have shown that the release of COVID-19 vaccines has affected general vaccination perceptions (Altman et al., 2023), and also, the health crisis may

have shifted the focus of people's decision-making prioritizing public health (Navajas et al., 2021). Future studies should study the long-term consequences of pandemic severity on vaccination. Finally, our data is cross-sectional in nature, which implies that we are unable to study causal relationships between partisanship and vaccine brand preference. Nonetheless, previous research in consumer psychology clearly points to a causal influence stemming from political affiliation as it can constitute an important part of consumers' self-concept, which in turn drives consumption choices that either reaffirm or align with a desired aspect of oneself.

In conclusion, our findings are in line with social identity theories of partisanship and reveal that partisan identities shape consumers' brand perceptions about vaccines. In light of this evidence, our results suggest that call-to-action messages, like the ones used by governmental agencies during COVID-19, might not be enough for people to forgo choosing the brand that best aligns with their self-image in favor of a rapid immunization process.

Data availability

All data generated and analyzed during this study are available at https://osf.io/wg6ht/?view_only=694fed9299bf40b59af9353be122f8ec.

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Author contributions

EF, CK and JN contributed substantially to the conception and design of this study. EF conducted data acquisition. CK and MD conducted the analysis with feedback of EF and JN. JDN wrote the draft manuscript. All authors commented and gave feedback on the draft, revised and adjusted the manuscript. All authors read and approved the final transcript and agreed to be accountable for all aspects of the work.

Competing interests

The authors declare no competing interests.

Ethical approval

All protocols in this study were approved by the ethics committee of CEMIC (Centro de Educación Médica e Investigaciones Clínicas Norberto Quirno) – Protocol 435, v. 5. All research was performed in accordance with the Declaration of Helsinki.

Informed Consent

Informed consent was obtained from all participants at the beginning of the survey. Prior to their participation, participants were presented with a detailed explanation of the study's purpose, procedures, potential risks and benefits, confidentiality measures, and their rights as participants. They were also informed that their participation was voluntary and that they could withdraw from the study at any time without any negative consequences. Participants were required to indicate their understanding of this information and provide their explicit consent before proceeding with the survey.

Additional information

Supplementary information The online version contains supplementary material available at <https://doi.org/10.1057/s41599-023-02067-1>.

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