Messaging interventions that increase COVID-19 vaccine willingness in Latin America

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Governments are now distributing safe and effective COVID-19 vaccines. Once vaccines are widely available, attaining herd immunity will depend on individuals choosing to vaccinate—and doing so quickly enough to outpace mutations. However, our online surveys from January 2021 in six Latin American countries document that only 59% of respondents would get vaccinated and the average individual would wait 4.3 months before vaccinating. Focusing on hesitant respondents, we then experimentally assess messages designed to counteract informational deficiencies and collective action problems that may drive hesitancy. Several actionable findings emerge. First, basic vaccine information persuades around 8% of hesitant individuals to become willing to vaccinate and reduces their intention to wait before vaccinating by 0.4 months. Second, priming the social approval benefits of vaccination similarly increases vaccine willingness, and outperforms priming economic or altruistic benefits of vaccination. Third, individuals are more likely to vaccinate if they believe herd immunity will be achieved.

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The COVID-19 pandemic has inflicted significant suffering across the globe, but the rapid development and production of safe and effective vaccines provides the basis for emergent mass vaccination campaigns to control the pandemic. With these technological innovations in place, the success of mass vaccination campaigns will ultimately depend on sufficiently large numbers of people choosing to get vaccinated to prevent the continued spread of the virus and facilitate the return of normal economic and social life. Since it is also essential for vaccination to outpace virus mutations that could limit vaccine effectiveness, it matters both *if and when* populations are willing to vaccinate.

However, quickly reaching the 60%-90% uptake rates that experts believe may be required to achieve herd immunity within a given community will be challenging[1, 29]. While question wording varies across studies, polls conducted in mid and late 2020 generally suggest that fewer than 70% of individuals are willing to get vaccinated in most countries[16, 20, 22, 23]. While enthusiasm appears to increase as vaccination campaigns have rolled out, it is likely that those vaccinated first rank among the enthusiastic "always-takers". In our study context of Latin America, where the mortality and socioeconomic impacts of COVID-19 have been substantial and vaccination campaigns are just beginning and are expected to continue into 2022, prior studies suggest that vaccine willingness generally lies between 50-60% (in Argentina, Chile, and Perú) and 70-80% (in Brazil and México). Fewer studies ask how quickly individuals would vaccinate once a vaccine is available to them. Those that do report that around half the population intends to wait more than 3 months[16]. If vaccine uptake is insufficient to attain herd immunity, or is too slow to prevent vaccine-resistant mutations, the pandemic is likely to last significantly longer.

To understand how mass vaccination campaigns can overcome individuals' hesitancy without mandating vaccination, we leverage social science frameworks that highlight how information and collective action problems can inhibit individually and socially optimal behaviors. The information transmission problem, whereby people lack exposure to credible information about the private health costs and benefits of vaccination, may decrease vaccine willingness among risk-averse and uninformed individuals. Indeed, emerging COVID-19 research predominantly in the Global North has suggested that vaccine willingness may be responsive to both expert information[13] and misinformation[22], although corrective messaging regarding vaccines for other diseases has produced less sanguine effects[8, 25, 26]. It is thus important to establish whether and what type of information about COVID-19 vaccines can increase vaccine willingness.

Beyond an individual's isolated health calculations, studies of collective action emphasize that information about the (expected) behavior of others could influence individual willingness—especially among hesitant individuals that perceive limited health benefits—to vaccinate in several ways[7]. Among vaccine hesitant individuals, learning that many others will vaccinate could reduce their vaccine willingness by causing them to "free ride" on the safety provided by others being vaccinated[3, 15, 27]. In contrast, learning that many others will vaccinate could instead increase vaccine willingness to the extent that individuals draw inferences about the costs and benefits of vaccinations from the aggregated decisions of others[17, 30] or update their perceptions of what is required to conform with community norms[13, 23, 24]. However, any motivation to coordinate behaviors with others may also depend on participating in a *successful* collective effort[12, 19, 28], such that vaccination becomes more desirable when an individual expects to participate in

a campaign that successfully achieves herd immunity. Since information about others' behaviors could both increase or decrease vaccine willingness, understanding the potential social drivers of vaccination also has important implications for public messaging.

Another encouragement highlighted by collective action research is "selective incentives"—private benefits that accrue indirectly only by taking the pro-social action[27]. Beyond the direct individual health benefits, prior studies in economic, public health, and political domains suggest that getting vaccinated could generate selective incentives through social approval[10, 11], an altruistic "warm glow" from helping others[2, 5], or improving individual or communal employment prospects.

We embed a randomized experiment in a large online survey fielded in six Latin American countries, where uncertainty about vaccines and public health misinformation are prevalent. The treatments seek to establish the degree to which vaccine willingness—in terms of both willingness to ever get vaccinated and how long an individual would wait to get vaccinated—can be increased by (i) information about COVID-19 vaccines, (ii) informing respondents of expert opinion regarding the share of the population that will need to vaccinate to achieve herd immunity and the share of the population that is currently willing to do so, and (iii) priming selective incentives relating to altruism, economic recovery, and social approval. We focus on the subpopulation that is hesitant about taking a COVID-19 vaccine—those who are either unwilling or uncertain about getting vaccinated quickly. Beyond illuminating the informational and social bases for vaccine hesitancy, our experimental analyses seek to assess the degree to which vaccine attitudes can be shaped by public messaging, which could inform upcoming mass campaigns designed to increase vaccine

willingness across Latin America and beyond.

Results

For our single-wave study, we recruited around 2,000 adults from large online panels in each of Argentina, Brazil, Chile, Colombia, México, and Perú. These countries rank among the most populous and worst hit by the pandemic in Latin America[18, 31]. The sample within each country was broadly nationally representative by age, gender, socioeconomic level, and region, according to recent national censuses; we also reweigh our data to ensure representativeness along these dimensions. The online surveys were conducted between January 11 and January 29, 2021. Figure 1 describes the survey flow graphically.

Vaccine hesitancy is common across Latin America. We first elicited respondents' general willingness to accept a vaccine once available to them and how soon they would take it (top-coded at 12 months). The results in Figure 2 suggest that herd immunity may currently be difficult to achieve: only 59% of our sample agreed or strongly agreed that they would take a vaccine once it were available to them, while the average respondent would wait 4.3 months before getting vaccinated once a vaccine were available to them. Such hesitancy varies across countries, with willingness ranging from 50% in Chile to 68% in Brazil and from 5.1 months in Chile to 3.5 months in Brazil. Given high levels of mobility within Latin America, all countries could be reduced to the lowest common denominator once borders fully reopen, risking the ability of the current generation of vaccines to quickly end the pandemic[14].

To focus attention on how hesitant individuals respond to informational and motivational interventions, we screened out respondents who agreed or strongly agreed that they would take a

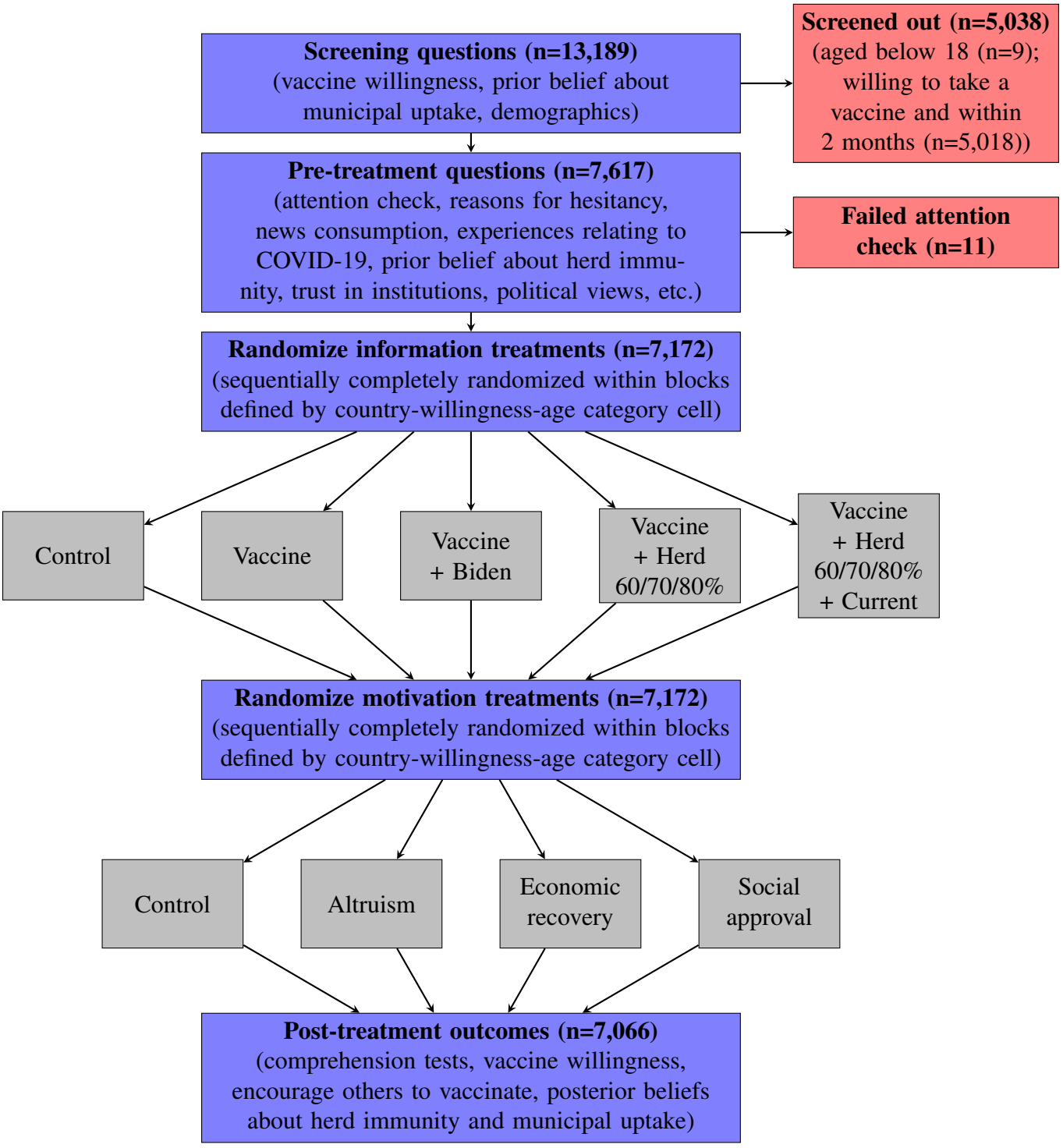
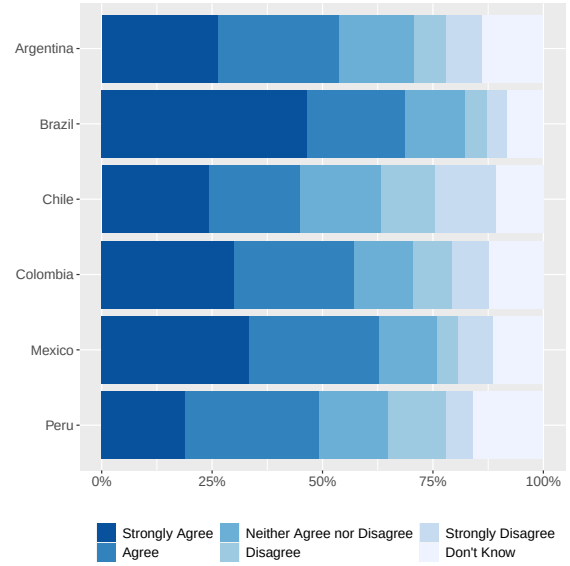
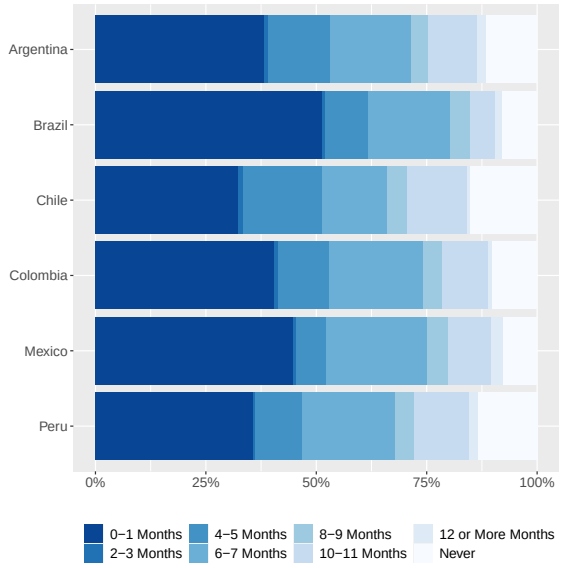


Figure 1: **Overview of survey flow and treatment assignments.** The n for each section of the survey refers to the number of respondents that started that section. The full survey questionnaire is included in SI section SI.16.



(a) "If a vaccine were available to me now, I would get vaccinated."

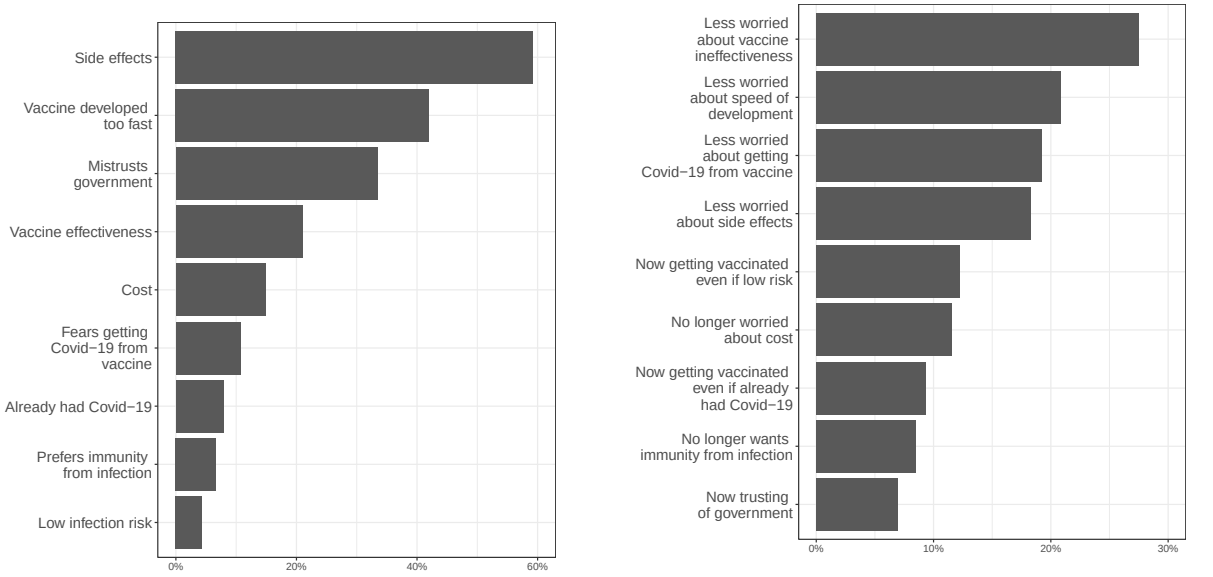


(b) "If a vaccine were available to you now, how many months would you wait before getting vaccinated?"

Figure 2: **Distribution of vaccine willingness across countries (January 11-29, 2021).** The questions for each figure were asked at the beginning of the survey of all participants. Observations are weighted to match the joint distribution over education, sex, region, and age category from the most recent census in each country.

vaccine once available to them *and* would take it within two months of becoming eligible. The survey proceeded for around 1,200 vaccine-hesitant individuals in each country. As Figure 3a shows, the primary concerns of these hesitant respondents regarded the vaccines' potential side effects (59%), the speed with which the vaccines were developed (42%), mistrust in government (33%), and skepticism of the vaccines' effectiveness (21%). We next describe the treatments that we designed to overcome such concerns about the private health net benefits of COVID-19 vaccination (see SI sections SI.1 and SI.2 for complete treatment scripts).

Treatment conditions. The common component of our vaccine information treatments provided basic facts about COVID-19 vaccines with the goal of informing respondents' private health cost-



(a) Reasons for hesitancy among the hesitant.

(b) Responses to vaccine information among respondents that received vaccine information.

Figure 3: **Reasons for initial vaccine hesitancy and response to vaccine information treatments.** The figure on the left reports the percentage of hesitant respondents that chose each reason for hesitancy from a multi-response list. The figure on the right reports the percentage of respondents that received a vaccine information treatment that chose each reason when asked how the vaccine information affected their concerns about COVID-19 vaccines. The exact questions and responses are shown in SI section SI.16.

benefit calculations. The specific informational deficiencies we sought to redress included: that approval of COVID-19 vaccines was based on rigorous medical trials; that these trials show the vaccines are safe and effective at preventing mild and severe forms of COVID-19; and that the side effects are generally minor and the vaccines cannot give you COVID-19. To reinforce the credibility of this information, as a vaccine endorsement by Dr. Anthony Fauci appears to achieve in the U.S.[6], an additional treatment informed respondents that U.S. President Joseph Biden had already been vaccinated.

To understand how expectations of others' behavior shapes individual decisions, six further treatment conditions provided information about the national population's need and willingness

to vaccinate, in addition to the basic vaccine facts just described. Reflecting uncertainty among experts when our experiment was designed[1], the first three treatment conditions varied whether respondents were informed that 60%, 70%, or 80% of the population would need to be vaccinated to achieve herd immunity. The next three conditions further reported the share of the population willing to be vaccinated in the respondent's country, based on recent studies (for early respondents) or on initial data from our survey (for the majority of respondents). By updating respondents' social expectations, these pieces of information could shape incentives to "free ride" on others getting vaccinated, induce social learning about the health benefits of vaccination from the decisions of others, alter perceptions of how to conform with societal norms, or inform the likelihood that getting vaccinated will be part of a successful collective effort that achieves herd immunity.

These eight treatment conditions are benchmarked against a pure control group that received no health information. After delivering each additional piece of information, (non-incentivized) comprehension questions helped respondents absorb the facts provided; the respondent's correct and incorrect answers to these questions were shown after each question. Manipulation checks later in the survey confirm that respondents internalized non-tested information as well (see SI section SI.3).

After the vaccine information treatments, we further cross-randomized exposure to messages seeking to prime selective incentives to get vaccinated. A social approval message highlighted that, by vaccinating, individuals can show others that they care about their community, and may then gain respect and approval from others in their community. An altruistic message aimed to activate a "warm glow" by emphasizing that, by vaccinating, respondents would be contributing

to healthier communities and protecting vulnerable populations. Finally, an economic message explained that stopping the spread of COVID-19 is required to help people return to work and therefore, by vaccinating, respondents would be helping the economy recover. A control group received no motivational message.

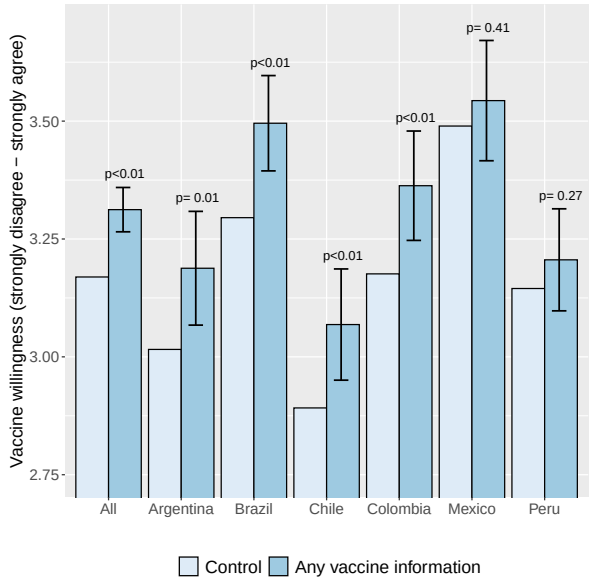
Measurement of vaccine willingness outcomes. Repeating the screening questions shown in Figure 2 several questions after treatment (and about 20 minutes after the questions were first asked), our three primary outcomes are the five-point agree-disagree scale of vaccine willingness, an indicator for whether a respondent agrees or strongly agrees that they would get vaccinated if a vaccine were available, and the number of months that a respondent would wait to get vaccinated (which we reverse so positive coefficients always imply greater willingness). In addition, we capture social influence by asking whether respondents would be somewhat or very likely to encourage others to get vaccinated. Since our study was designed to help inform nascent vaccination campaigns before the general public becomes eligible, these outcomes capture vaccination *intentions*. Nevertheless, previous studies suggest that messaging campaigns can scale up to influence mass health behaviors in other domains[32].

Basic vaccine information increases vaccine willingness and reduces intended wait until vaccination. As Figure 4 illustrates, providing basic facts about the COVID-19 vaccines—what they do, how they were developed, that they are efficacious, and do not cause major side effects—significantly increased vaccine willingness among the hesitant in Latin America. Pooling across the vaccine information treatment conditions, panel B shows that receiving this information increased the probability of respondents agreeing or strongly agreeing that they would get vaccinated

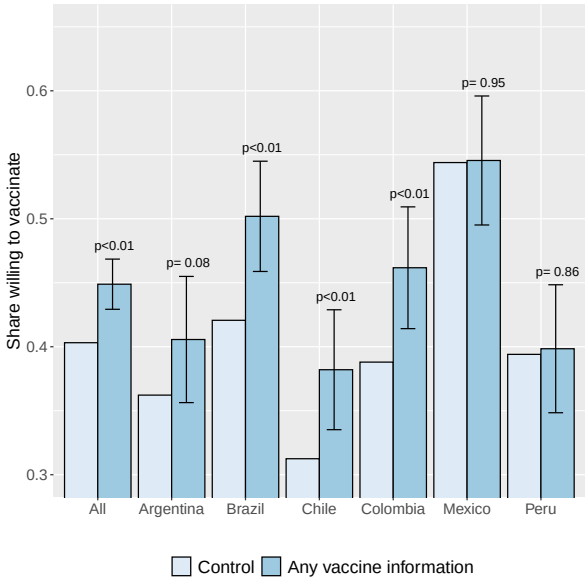
by 0.046 probability points (95% CI: 0.026 to 0.065). Since 40% of control respondents agreed with this statement, the treatment effect implies that 7.7% of the hesitant were persuaded to take a vaccine. In addition to increasing willingness to vaccinate, panel C shows that basic vaccine information also reduced the average time until vaccination by 0.41 months (95% CI: 0.30 to 0.52), or about 0.1 standard deviations of the control group distribution. Panel D further shows that basic vaccine information also increased the probability that respondents would encourage others to get vaccinated by 0.037 probability points (95% CI: 0.014-0.060). As Figure 3b illustrates, these effects appear to be driven by reducing concern that the vaccines will be ineffective, were developed too fast, would give people COVID-19, and would produce serious side effects.

Although individuals from different subgroups vary in their baseline hesitancy rates, the effect of receiving basic vaccine information is remarkably similar on hesitant individuals that vary in terms of observable characteristics that mass information campaigns could target. First, Figure 4 shows that the information significantly increased the speed with which individuals reported that they would get vaccinated in each of the six countries under study, their willingness to vaccinate in all countries but México and Perú, and the likelihood of encouraging others to vaccinate in Argentina, Chile, and Colombia. Second, as we show in SI section SI.8, we do not observe substantial differences in persuasion across age groups, socioeconomic class, education, or support for the incumbent president. Although the treatment also increased the willingness of men to vaccinate, this was roughly twice as effective among women.

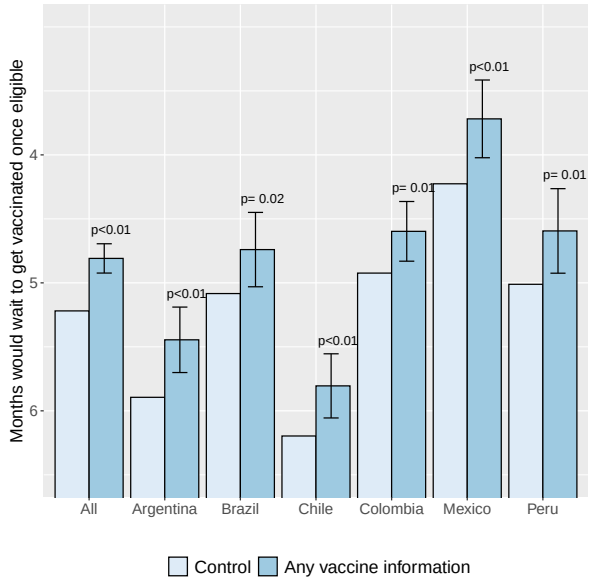
Turning next to the treatments that provided additional information, Figure 5 shows that neither informing respondents about the levels of vaccination required to reach herd immunity



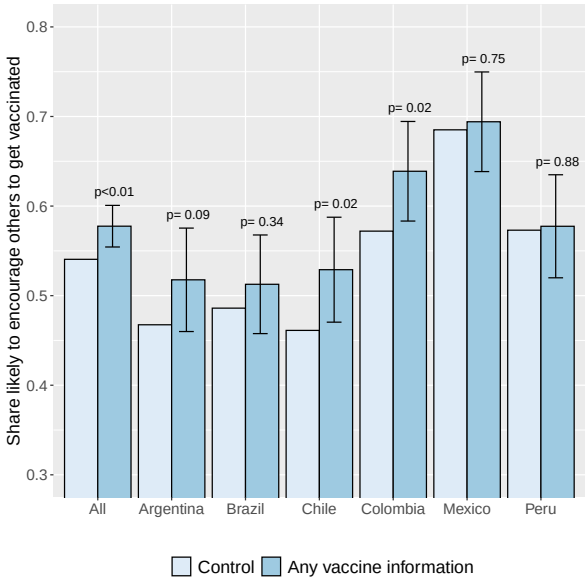
(a) Vaccine willingness scale.



(b) Willing to take a vaccine.

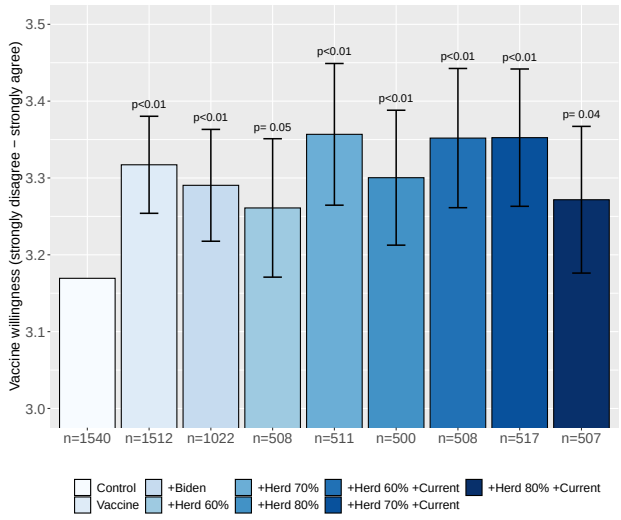


(c) Months would wait to get vaccinated.

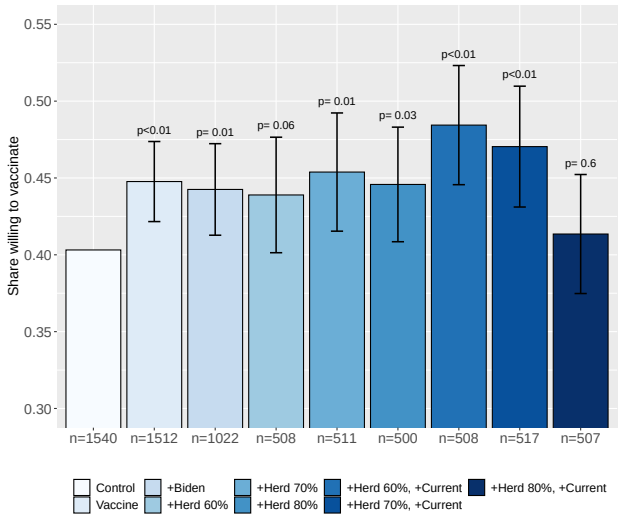


(d) Encourage others to get vaccinated.

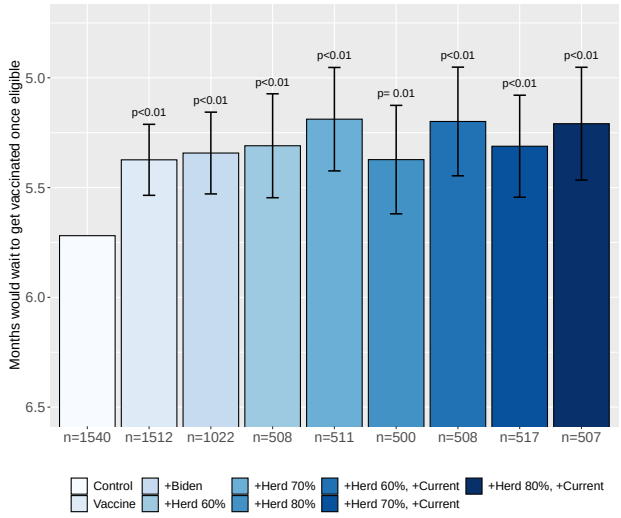
Figure 4: **Average effects of basic vaccine information on vaccine willingness, by country.** Each bar depicts a group outcome mean. The outcome in panel (a) is a five-point vaccine willingness scale ranging from "strongly disagree" (1) to "strongly agree" (5); the outcome in panel (b) is an indicator for "agree" or "strongly agree"; the outcome in panel (c) is the (reversed) number of months that a respondent would wait to get vaccinated once eligible for a vaccine; and the outcome in panel (d) is an indicator for a respondent being "somewhat likely" or "very likely" to encourage others to get vaccinated. Error bars denote 95% confidence intervals for treatment effects relative to the control group; the associated p values are from two-sided t tests. The underlying regression specifications for each outcome are described in the Methods section and the underlying regression table is reported in SI section SI.5.



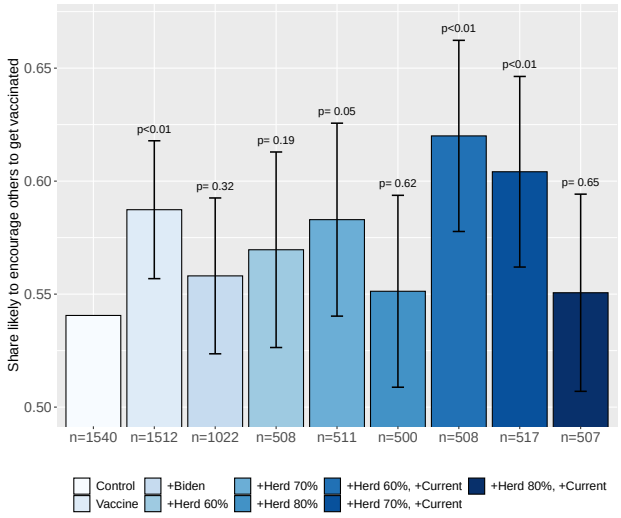
(a) Vaccine willingness scale.



(b) Willing to take a vaccine.



(c) Months would wait to get vaccinated.



(d) Encourage others to get vaccinated.

Figure 5: **Average effects of vaccine information variants on vaccine willingness.** Each bar depicts a group outcome mean, with the sample size in each group reported below. The outcome in panel (a) is a five-point vaccine willingness scale ranging from "strongly disagree" (1) to "strongly agree" (5); the outcome in panel (b) is an indicator for "agree" or "strongly agree"; the outcome in panel (c) is the (reversed) number of months that a respondent would wait to get vaccinated once eligible for a vaccine; and the outcome in panel (d) is an indicator for a respondent being "somewhat likely" or "very likely" to encourage others to get vaccinated. Error bars denote 95% confidence intervals for treatment effects relative to the control group; the associated p values are from two-sided t tests. The underlying regression specifications for each outcome are described in the Methods section and the underlying regression table is reported in SI section SI.5.

nor informing respondents that President Biden was vaccinated produced additional effects on vaccine willingness. With the exception of the current willingness treatment combined with 80% being required for herd immunity (discussed below), we cannot reject the null hypothesis that the average effect of the other seven vaccine information treatments on the three individual willingness outcomes is identical. Further analyses show no differences in the reasons given for becoming less hesitant across the different information treatments (see SI section SI.7). The results thus suggest that respondents found the basic vaccine information credible without the "do as I do" endorsement of a prominent public figure and do not respond to herd immunity information *on its own*.

Expecting a vaccination campaign to achieve herd immunity increases willingness to vaccinate and reduces intended wait until vaccination. Theories of peer effects predict heterogeneous effects that depend on individuals' prior beliefs or the relationship between herd immunity and current willingness. This differs from the prior section, which found that providing information about herd immunity requirements and the proportion of the population that is currently willing to get vaccinated did not affect vaccine willingness beyond basic vaccine information *on average*.

Distinguishing respondents based on how information related to their prior beliefs, we find no evidence to suggest that vaccine willingness is driven by free riding, social learning, or social conformity. Indeed, receiving information about the current level of vaccine willingness in their country did cause respondents to substantially update their beliefs about vaccine uptake in line with whether reported willingness was above/below a respondent's prior belief. However, being informed that willingness is above (below) prior expectations does not decrease (increase)

an individual's vaccine willingness, as free riding would predict. Similarly, being informed that willingness is above (below) expectations does not increase (decrease) an individual's vaccine willingness as social learning or a simple desire for social conformity would predict. SI section SI.10 reports these null findings in detail.

As the limited effect of the treatment informing respondents of the current willingness rate together with the 80% herd immunity bar suggests, the role of social interactions may instead depend on expectations of whether herd immunity will be achieved. Exploring this further, Figure 6 shows that the effect of receiving current willingness information, relative to only receiving an expert herd immunity opinion, varies with whether this national willingness rate—which never exceeded 80% in any country, and averaged 67% across countries—is above or below the expert herd immunity opinion. Being informed that the current rate exceeds the expert herd immunity requirement increased vaccine willingness by 0.079 probability points (95% CI: 0.027 to 0.131), whereas being informed that the current rate is below the expert judgement may even have reduced vaccine willingness (95% CI: -0.061 to 0.011). The same dynamic is evident for the speed with which individuals are willing to get vaccinated and encouraging others to get vaccinated, although the effects are only statistically significant in the latter case. Consistent with these findings, our pre-treatment observational data show that vaccine willingness was greatest among respondents that expected both high community uptake rate and high shares of vaccination to attain herd immunity (SI section SI.11). This evidence suggests that participating in a collective campaign that achieves herd immunity may inspire vaccine uptake. This could reflect intrinsic motivations to be part of a "winning team" or social incentives to be seen to be part of such a successful collective effort.

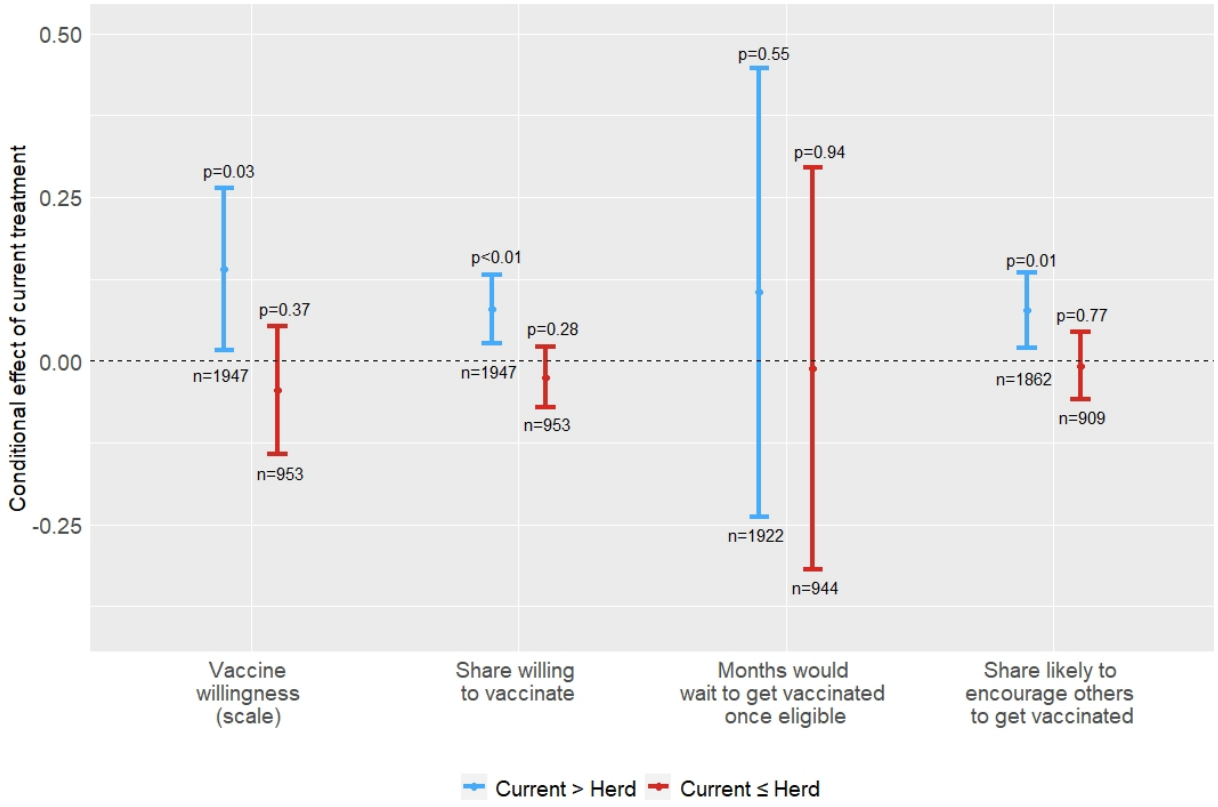
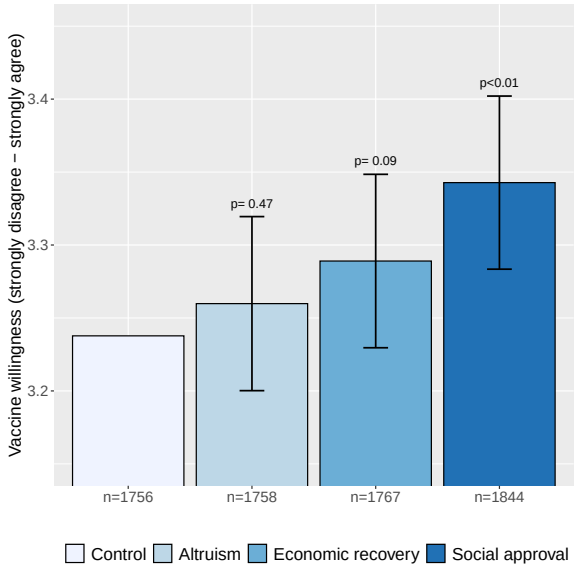


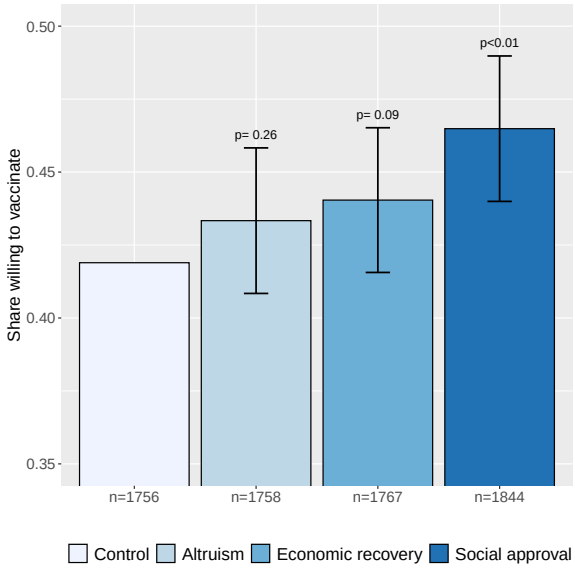
Figure 6: **Effects of current willingness information on vaccine willingness, by whether current willingness is above or below the expert herd immunity opinion a respondent was exposed to.** Each bar depicts a 95% confidence interval for the conditional average treatment effect of receiving the current willingness treatment, relative to just receiving an expert herd immunity opinion; the associated p values are from two-sided t tests and n captures the number of respondents in each subgroup. The outcome variables arrayed along the x axis are: a five-point vaccine willingness scale ranging from "strongly disagree" (1) to "strongly agree" (5); an indicator for "agree" or "strongly agree"; the (reversed) number of months that a respondent would wait to get vaccinated once eligible for a vaccine; and an indicator for a respondent being "somewhat likely" or "very likely" to encourage others to get vaccinated. The underlying regression specifications for each outcome are described in the Methods section and the underlying regression table is reported in SI section SI.5.

Social approval increases vaccine willingness and reduces intended wait until vaccination. The desire to participate in a successful coordinated vaccination effort chimes with individuals' responses to our motivation treatments. Comparing the altruistic, economic recovery, and social approval messages, Figure 7 shows that priming the respect that individuals will receive in their community for getting vaccinated may play an important role in overcoming vaccine hesitancy. Specifically, the social approval treatment increased vaccine willingness by 0.046 probability points (95% CI: 0.021 to 0.071), which translates into persuading 7.9% of hesitant respondents—a level comparable to exposure to basic vaccine information. The 0.25 month reduction in how long respondents would wait to get vaccinated (95% CI: 0.09 to 0.42) is a little lower than for basic vaccine information, but non-trivial in magnitude at a national level. Priming the social incentives to get vaccinated also caused individuals to become more likely to encourage others to get vaccinated. Heterogeneous effect analyses suggest that social approval motivates most subgroups, but is less effective among those aged above 65 and supporters of the current incumbent party (see SI section SI.12). Moreover, social approval neither substantially crowds out nor complements the effects of basic vaccine information (see SI section SI.13).

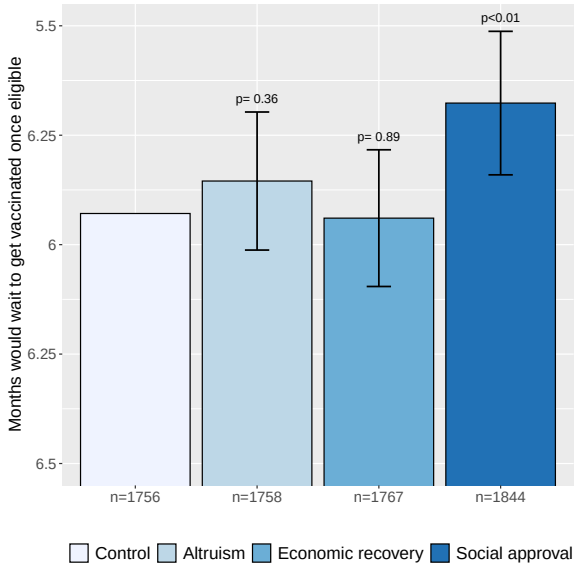
In contrast, we find no evidence to suggest that priming altruistic motives encourages vaccination among hesitant Latin Americans. The economic recovery motivation, which could be interpreted either in selfish or pro-social terms, increased willingness to get vaccinated by 0.022 probability points (95% CI: -0.003 to 0.046), but was not quite statistically significant at the 95% level using a two-tailed test and had little effect on the number of months that a respondent would get vaccinated (95% CI: -0.17 to 0.15).



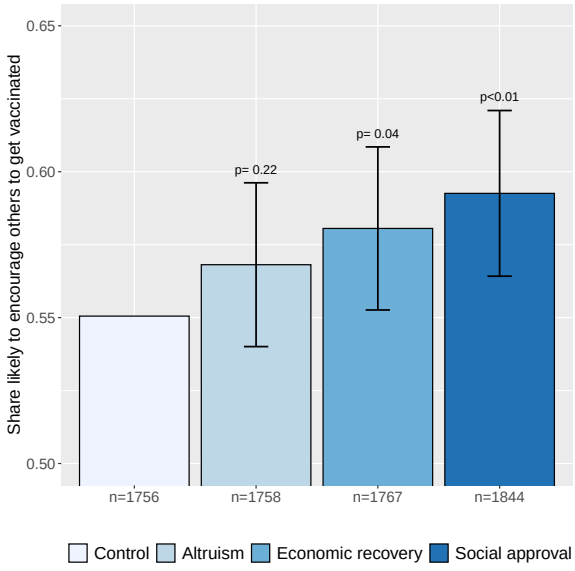
(a) Vaccine willingness scale.



(b) Willing to take a vaccine.



(c) Months would wait to get vaccinated.



(d) Encourage others to get vaccinated.

Figure 7: **Average effects of motivational messages on vaccine willingness.** Each bar depicts a group outcome mean. The outcome in panel (a) is a five-point vaccine willingness scale ranging from "strongly disagree" (1) to "strongly agree" (5); the outcome in panel (b) is an indicator for "agree" or "strongly agree"; the outcome in panel (c) is the (reversed) number of months that a respondent would wait to get vaccinated once eligible for a vaccine; and the outcome in panel (d) is an indicator for a respondent being "somewhat likely" or "very likely" to encourage others to get vaccinated. Error bars denote 95% confidence intervals for treatment effects relative to the control group; the associated p values are from two-sided t tests. The underlying regression specifications for each outcome are described in the Methods section and the underlying regression table is reported in SI section SI.5.

Discussion

Across six major Latin American countries, we find moderate—albeit cross-nationally varying—levels of vaccine hesitancy. As of January 2021, little more than half the adult population was willing to take a vaccine, while similar numbers would take a vaccine within 3 months of becoming eligible. This may be too low to rapidly achieve herd immunity in the face of emerging COVID-19 variants. Fortunately, by recognizing that hesitancy reflects informational and coordination problems, our results suggest that potential behaviors remain malleable and public messaging could significantly increase both vaccine uptake and the speed of uptake among the hesitant. Our online experiment shows that providing basic information about vaccines, encouraging individuals to believe that they could be part of a successful collective effort, and harnessing the reputational benefits of vaccination that people expect to receive can reduce vaccine hesitancy.

By illuminating mechanisms that drive hesitancy of the COVID-19 vaccines and what messages can overcome them, our findings can inform the design of public health communication strategies and vaccine distribution. In terms of communication strategies, we show that simple information about safety and efficacy counteracts skepticism about the new vaccines among hesitant individuals. Saturating public discourse or microtargeting more hesitant demographic groups with such information from a credible source may then increase uptake in the population both by directly persuading individuals but also through social amplification mechanisms—given the apparent desire both for social approval and, once informed, to encourage others to vaccinate. Although the message may not convince ardent anti-vaxxers, it appears to resonate with many types of respondent that have concerns about the COVID-19 vaccines.

Our finding that vaccine willingness is not simply a private cost-benefit calculation further suggests that policymakers should make vaccine uptake observable in at least two different ways. First, organic social approval mechanisms could be amplified by interventions through which individuals can show peers that they have been vaccinated. This could involve "I got vaccinated" stickers or wristbands, vaccine passports, or ways of sharing vaccination status on social media. Second, rather than worry about free-riding or encouraging individuals to feel a warm glow, our findings suggest that policymakers should make aggregate uptake rates visible—whether in the news, through official briefings, or more direct messaging (in person or through ads)—as vaccination levels approach herd immunity to spark the expectation of joining a successful herd immunity drive. Such upbeat communication might be enhanced by emphasizing winning together as a "team", perhaps by including sports teams in campaign programming. Since the value of social approval could decline as vaccination rates increase[4], efforts to activate social dynamics may need to be sequenced to initially emphasize social approval mechanisms, before later shifting toward the positive messaging about reaching herd immunity.

The implications of our online experiment for the design of mass vaccinations campaigns are limited in several ways. First, our study was conducted to inform future mass vaccine rollouts, so it does not behaviorally measure vaccine uptake in the general population. Whether initial intentions translate into actual vaccination cannot be known until the mass population becomes eligible, although our results demonstrate that vaccine concerns can—at least temporarily—be overcome by suitable messages. Second, our messages were delivered once in a controlled survey context, rather than in a more complex setting where many messages compete and are repeated. While

the effect of a single message is unlikely to endure until vaccines reach the general population in Latin America, communication campaigns may be able to achieve similar results by intensively delivering effective messages. Further testing should identify the number of exposures required to consolidate vaccine willingness. Third, by focusing on encouraging hesitant respondents to vaccinate, we did not study whether the messages could discourage individuals that were already willing to vaccinate. Beyond weakening social approval incentives, such backfiring appears unlikely if individuals are more willing to vaccinate when others are vaccinating (and thus herd immunity is more likely to be achieved).

Despite these limitations, our evidence ultimately highlights the *types* of messaging and programming that may combat COVID-19 vaccine hesitancy in Latin America—and perhaps beyond, given related findings in the Global North[22, 23]. Although careful design is needed to generate policies that cultivate similar responses to the treatments in our controlled study environment, we show that campaigns to redress informational deficiencies and harness social dynamics could persuade hesitant individuals to vaccinate and thereby help countries more quickly reach herd immunity.

Methods

This study was approved by Columbia University's Institutional Review Board (protocol number IRB-AAAT5273). The design and core estimation strategies were registered in a pre-analysis plan deposited in the Social Science Registry (www.socialscienceregistry.org/trials/7080). All statistical analyses were implemented in R, with the exception of the bounding exercises that were conducted in Stata.

Recruitment. Respondents in each country were recruited via Netquest's online panels between January 11 and January 29, 2021. Netquest's dynamic enrollment protocols updated invitations to ensure that the sample frame was nationally representative in terms of sex, age category, socioeconomic status, and region. Upon clicking a link to participate, respondents reached a Qualtrics landing page, where information about the academic study was provided and consent to participate in the study was obtained. With the exception of lower socioeconomic status respondents in México and Perú, the marginal distribution of respondents that started the survey (i.e. reached our screening juncture) closely approximated the census distribution for most country-variables.

Screening. In addition to screening out respondents that were already willing to take a vaccine within less than 2 months of it becoming available, we also screened out respondents aged below 18 (n=9) or who failed our attention check eleven questions into the main survey (by failing to correctly identify the capital city of their country; n=11). Given these few screen outs, our sample of hesitant respondents is also likely to be broadly nationally representative of this subgroup. The median completed survey lasted 26 minutes; respondents who completed the survey were compen-

		Information about vaccines?									
								Vaccine + Herd + Current			
		None	Vaccine	Vaccine + Biden	Vaccine + Herd 60%	70%	80%	60%	70%	80%	Pooled
Motivational message?	None	378	406	274	143	127	124	128	121	143	1,844
	Altruism	401	365	254	121	127	111	128	130	119	1,756
	Economic recovery	386	351	245	124	128	139	128	133	124	1,758
	Social approval	375	390	249	120	129	126	124	133	121	1,767
	Pooled	1,540	1,512	1,022	508	511	500	508	517	507	7,125

Table 1: **Distribution of treatments assignments.** The numbers in each cell indicate the number of respondents randomized into each condition (pooling across countries).

sated with approximately 3 US dollars. Respondents who took less than 10 minutes to complete the survey (n=47) were excluded from the experimental analyses.

Treatments and randomization. The full text for each treatment condition is provided in SI sections SI.1 and SI.2. Both the information and motivational treatments were assignment within 144 blocks defined by country (6 possible values), pre-treatment vaccine willingness (6 possible values), and age category (4 possible values). Within each block, sequential complete randomization was used to assign treatments within Qualtrics. Table 1 reports the realized distribution of treatment assignments. The corresponding treatment assignment probabilities are reported in SI section SI.1.

Measurement of outcome variables . The full question and set of answers for each outcome variable is described in SI section SI.4.

Weighting of data. To maximize the representativeness of the descriptive data in Figure 2, we apply population weights based on the most recent census. In particular, we weight respondents to match the population distribution at the education (none, primary, secondary, university, other

higher) sex (male, female) region (multiple regions that differ by country) age category (multiple categories that differ by country) cell level within each country. We estimate treatment effects without applying population weights, but report qualitatively similar, and larger in magnitude, results when such weights are applied in SI section SI.15. We also demonstrate robustness to using rake weights that achieve national representativeness across the marginal distribution of each covariate in SI section SI.15.

Estimating average treatment effects of vaccine information. We estimate the effect of each of the eight vaccine information treatments separately using the following pre-specified OLS regression:

$$Y_{ic} = {}_{bc} + Y_{ic}^{pre} + {}_{1}Vaccine_{ic} + {}_{2}Vaccine\ and\ Biden_{ic} + \sum_{k=60;70;80} {}_{3}^{k}Vaccine\ and\ Herd\ k\%_{ic} + \sum_{k=60;70;80} {}_{4}^{k}Vaccine\ and\ Herd\ k\%\ and\ Current_{ic} + "_{ic}; \quad (1)$$

where Y_{ic} is an outcome for respondent i in country c, ${}_{bc}$ are block country fixed effects, Y_{ic}^{pre} is a standardized version of the pre-treatment number of months that respondent i would wait to get vaccinated once eligible, $Vaccine_{ic}$ is an indicator for the basic vaccine information provided about COVID-19 vaccines, $Vaccine\ and\ Biden_{ic}$ is an indicator for additionally being informed that Biden was vaccinated, $Vaccine\ and\ Herd\ k\%$ is an indicator for receiving the basic vaccine information and being informed that experts believe that at least $k \in \{60; 70; 80\}$ percent of individuals will need to get vaccinated to prevent the spread of COVID-19, and $Vaccine\ and\ Herd\ k\%\ and\ Current_{ic}$ indicates respondents are further informed of their country's current rate of vaccine willingness.

Between the fixed effects and the lagged outcome, we adjust for baseline pre-treatment hesitancy responses and increase statistical power. All observations are weighted by the inverse probability of treatment assignment and heteroskedasticity-robust standard errors are used in all regression analyses. Each coefficient estimates an average treatment effect of the corresponding treatment.

When pooling across information treatments, we estimate the following pre-specified OLS regression:

$$Y_{ic} = {}_{bc} + Y_{ic}^{pre} + \textit{Any vaccine information}_{ic} + {}''_{ic}; \quad (2)$$

where $\textit{Any vaccine information}_{ic}$ indicates that respondent i received any information treatment and is the associated average treatment effect.

Estimating treatment effects of belief updating about herd immunity and current aggregate willingness to vaccinate. To estimate the effect of beliefs about the level of vaccination required to achieve herd immunity, we leverage experimental variation in whether a respondent was informed that experts believe 60%, 70%, or 80% of the population is required to achieve herd immunity. The direction of updating is not random, because this depends on a respondent's prior belief. However, conditional on a given prior belief, the direction of induced belief updating randomly varies with the expert opinion regarding the vaccination rate required to achieve herd immunity. We exploit such variation by estimating the following OLS regression among the subset of respondents that

received a treatment containing information about herd immunity levels:

$$Y_{ic} = \quad _{bc} + \quad Y_{ic}^{pre} + \quad [Herd\,prior_{ic} < k_{ic}] + \sum_{p} \quad _{p}\ [Herd\,prior_{ic} = p] + \ "_{ic}; \qquad (3)$$

where the treatment $[Herd\,prior_{ic} < k_{ic}]$ is an indicator for respondent i's prior belief $Herd\,prior_{ic}$ (the percentage $p \ 2\ [0; 100]$ of the population that needs to get vaccinated to stop the propagation of COVID-19, which was elicited pre-treatment) being below the reported expert opinion on the herd immunity rate k_{ic}, and is the associated average treatment effect. As robustness checks, we examine more fine-grained updating treatments in SI section SI.9.

To estimate heterogeneous effects of being informed of the current level of national willingness to vaccinate with respect to a respondent's prior belief, we estimate the following OLS regression:

$$\begin{aligned} Y_{ic} = \quad _{bc} + \quad Y_{ic}^{pre} + \quad _{1}Current_{ic} + \quad _{2}(Current_{ic} \qquad [Willing\,prior_{ic} < r_{ic}]) \\ + \quad [Willing\,prior_{ic} < r_{ic}] + \ "_{ic}; \end{aligned} \qquad (4)$$

where $Current_{ic}$ is an indicator for i receiving information about the current rate of vaccine willingness (where the comparison group contains control respondents and respondents that received other treatment conditions that did not report current willingness), and $[Willing\,prior_{ic} < r_{ic}]$ is an indicator for a respondent's prior belief about the willingness rate in their community being below the national willingness rate $r_{ic} \ 2 \ f56; 57; 58; 61; 64; 66; 67; 73; 75; 79g$ reported (or that would have been reported if treated). $_{1}$ then estimates the effect of being informed about the

current level of national vaccine willingness among respondents encouraged to update upwards about the current national rate of vaccine willingness, while $_1 + _2$ captures the effect of treatment among respondents encouraged to update downwards about the current national rate of vaccine willingness.

We further estimate the effect of providing information relating expert opinions on herd immunity requirements to current rates of vaccine willingness. Following our approach to estimating the effect of exposure to different expert opinions about herd immunity, whether the expert herd immunity rate opinion that a respondent receives is above or below the current rate of vaccine willingness is randomly assigned, conditional on the country's current rate of willingness. Interacting this variation in potential belief updating with whether a respondent received information about the current rate then captures the effect of learning that the current rate is above or below the expert herd immunity rate, beyond exposure to a given expert herd immunity opinion. We estimate this effect using the following OLS regression among the subset of respondents that received a herd immunity treatment:

$$Y_{ic} = {}_{bc} + {}Y_{ic}^{pre} + {}_1 Current_{ic} + {}_2\,[r_{ic} < k_{ic}] + {}_3(Current_{ic} \quad [r_{ic} < k_{ic}]) + \sum_p {}_p\,[r_{ic} = p] + \sum_p {}_p(Current_{ic} \quad (\,[r_{ic} = p] \quad {}_p)) + {}"_{ic}; \tag{5}$$

where $[r_{ic} < k_{ic}]$ is an indicator for respondents for whom the expert opinion for the level of vaccination required to achieve herd immunity exceeded the current level of vaccine willingness, r_{ic}, in the respondent's country, and thus $_1$ and $_1 + _3$ estimate the effect of being informed that

the current rate is above and below, respectively, what experts believe is required to attain herd immunity. The interactions between the (demeaned) fixed effects for the current rate at the time of the survey, ($[r_{ic} = p]$ $_p$) for each level of current willingness, and $Current_{ic}$ are included to identify the effect of $Current_{ic}$ $[r_{ic} < k_{ic}]$; the fixed effects in the estimation sample are demeaned to ensure that $_1$ captures the conditional average treatment effect when $r_{ic} < k_{ic}$.

Estimating treatment effects of motivation messages. We estimate the effect of the three motivation messages by comparing each message to the control group receiving no message using the following pre-specified OLS regression:

$$Y_{ic} = \ _{bc} + \ Y_{ic}^{pre} + \ _1 Altruism_{ic} + \ _2 Economic\ recovery_{ic} + \ _3 Social\ approval_{ic} + \ "_{ic}; \quad (6)$$

where $Altruism_{ic}$, $Economic\ recovery_{ic}$, and $Social\ approval_{ic}$ indicate whether respondent i received the respective treatment. Observations are unweighted due to the equal probabilities of treatment assignment. Each coefficient estimates an average treatment effect of the corresponding treatment.

Estimating heterogeneous treatment effects. To examine heterogeneity in the effect of the basic vaccine information treatment, we estimate OLS regressions of the following form:

$$\begin{aligned} Y_{ic} = \ & _{bc} + \ Y_{ic}^{pre} + \ _0 Any\ vaccine\ information_{ic} \\ & + \tau_1 (Any\ vaccine\ information_{ic} \quad \mathbf{X}_{ic}) + \gamma \mathbf{X}_{ic} + \ "_{ic}; \end{aligned} \quad (7)$$

where $\mathbf{X}_{ic}$ is a vector of predetermined respondent-level characteristics. To estimate heterogeneity in the effect of the motivational treatments, we estimate analogous equations where we replace $\mathit{Any\ vaccine\ information}_{ic}$ with indicators for the three motivational messages.

Statistical inference. All statistical inferences are derived from two-tailed t tests and 95% confidence intervals based on the regressions previously described. The two-tailed tests are more conservative than the one-tailed tests for positive average treatment effects than we pre-specified.

Computing persuasion rates. Following standard practice in the information and persuasion literature[9], we compute the persuasion rate as: $100 \quad \frac{ATE}{1 \quad Y_0}$, where ATE is a given average treatment effect of interest and Y_0 is the (post-treatment) control group mean outcome. The persuasion rate captures the share of the non-willing that become willing due to treatment. Since all treated respondents were directly exposed to treatment, we do not adjust for the share of respondents that engaged with treatment.

Support for the identifying assumptions. The average treatment effects are identified under two assumptions: (i) the stable unit treatment value assumption (SUTVA); and (ii) unconfounded treatment assignment. SUTVA almost certainly holds because interference between respondents between start and end of the survey is implausible in the large countries under study and because versions of treatment were controlled by the research team. Although treatments were randomly assigned, identification of causal effects could be confounded by chance imbalances or differential attrition across treatment groups. As SI section SI.6 shows, neither potential concern drives the results and the results are robust to bounding our estimates to address differences in attrition[21].

Reporting Summary . Further information on research design is available in the Nature Research Reporting Summary linked to this article.

Data availability. The data used in this study is available at https://github.com/jm4401/Vaccine-hesitancy-in-Latin-America. The Spanish language survey instrument is provided in SI section SI.16; the Portuguese version is available upon request from the authors.

Code availability. The code developed for this study is available at https://github.com/jm4401/Vaccine-hesitancy-in-Latin-America.

References

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Author contributions All authors contributed to each aspect of this study.

Competing Interests The authors declare that they have no competing financial interests.

Additional information Supplementary information will be available online. Correspondence and requests for materials should be addressed to John Marshall.

Supplementary Information

Contents

SI.1 Vaccine information treatment conditions

The following script shows the full information script received by different vaccine information treatment groups, in both English and then Spanish (the Portuguese translations are available upon request):

> *[Control and all treatment groups]* Latin American countries are beginning to distribute their first doses of vaccines.
>
> Los países de Latinoamérica están comenzando a distribuir sus primeras dosis de vacunas.
>
> *[All treated groups]* The next screen will provide **important information about these COVID-19 vaccines**.
>
> Vaccines are designed to **prevent disease**.
>
> After **extensive testing by medical experts**, different countries have approved the use of various vaccines against COVID-19.
>
> Clinical tests have shown that the vaccines are **safe and highly effective** in preventing mild and severe COVID-19 infections. The **side effects are generally minor** and you cannot get COVID-19 from the vaccine.
>
> La siguiente pantalla proporcionará **información importante sobre estas vacunas** contra el COVID-19.
>
> Las vacunas están diseñadas para **prevenir enfermedades**.
>
> Después de **pruebas exhaustivas realizadas por expertos médicos**, se ha aprobado el uso de varias vacunas contra el COVID-19 en diferentes países.

Las pruebas clínicas han demonstrado que las vacunas son **seguras y altamente eficaces** en prevenir infecciones leves y graves de COVID-19. Los **efectos secundarios son generalmente menores** y no se puede contraer COVID-19 de una vacuna.

[Biden treatment group only] A few weeks ago, **President Joe Biden safely received a vaccine** against COVID-19 in the United States.

Hace algunas semanas, **el presidente Joe Biden recibió, de manera segura, una vacuna** contra el COVID-19 en los Estados Unidos.

[Herd and Current treatments conditions only] If enough people get vaccinated against COVID-19, the coronavirus will stop spreading.

Some experts say that **at least [60/70/80]% of people need to be vaccinated to prevent the spread of the coronavirus**.

Si suficientes personas se vacunan contra el COVID-19, el Coronavirus dejará de propagarse.

Algunos expertos dicen que **al menos [60/70/80]% de las personas necesitan vacunarse para evitar la propagación del Coronavirus**.

[Current treatments conditions] Recent data indicates that **X% of people in [COUNTRY] currently say they would get vaccinated** against COVID-19.

Datos de esta encuesta indican que **X% de las personas en [COUNTRY] actualmente dicen que se vacunarían** contra el COVID-19.

The control group only received the basic text in black, while the Vaccine, Herd, and Current components of the information treatments were successively shown on further screens (the Cur-

		Information about vaccines?									
								Vaccine + Herd + Current			
		None	Vaccine	Vaccine + Biden	Vaccine + Herd 60%	70%	80%	60%	70%	80%	Pooled
Motivational message?	*None*	3/56	3/56	1/28	1/56	1/56	1/56	1/56	1/56	1/56	1/4
	Altruism	3/56	3/56	1/28	1/56	1/56	1/56	1/56	1/56	1/56	1/4
	Economic recovery	3/56	3/56	1/28	1/56	1/56	1/56	1/56	1/56	1/56	1/4
	Social approval	3/56	3/56	1/28	1/56	1/56	1/56	1/56	1/56	1/56	1/4
	Pooled	3/14	3/14	1/7	1/14	1/14	1/14	1/14	1/14	1/14	

Supplementary Table 1: **Informational treatments factorial design.** The numbers in each cell indicate the share of the sample randomized into each condition within each country.

rent information was shown together with the Herd expert opinion). The expert opinion of the vaccination rate required to achieve herd immunity randomly varies across treatment variants reporting 60%, 70%, or 80%—the most frequently cited numbers cited by experts around the time the survey was designed. Respondents that received the Current component of the information treatment were informed of the rate of vaccine willingness in their country according to recent surveys (for the first around 200 respondents per country) or the early respondents to this survey (all subsequent respondents). The text was all shown in black, but the emboldened sections were emboldened within Qualtrics. In each treatment condition, respondents were given a quick quiz to ensure that they internalized key information on each screen.

The eight different treatment groups are described in Supplementary Table 1. The probability distribution used for the randomization assignment of conditions is arrayed along the x axis.

SI.2 Motivational message treatment conditions

After receiving the information treatments described in the previous section, respondents were independently randomly assigned to receive a motivational message. A control group received no message, while the altruism, economic recovery, and social approval messages are shown below in

English and then Spanish (the Portuguese translations are available upon request):

[Altruism] Getting vaccinated against COVID-19 helps stop the spread of COVID-19 and thus prevents the most vulnerable from getting sick.

By getting vaccinated against COVID-19, **you will help keep others in your community healthy**.

Vacunarse contra el COVID-19 ayuda a detener la propagación del COVID-19 y así evita que los más vulnerables se enfermen.

Si usted se vacuna contra el COVID-19, **ayudará a mantener saludables a otros en su comunidad**. *[Economic recovery]* The faster [COUNTRY] can stop the spread of COVID-19, the faster people will get back to work.

If you get vaccinated against COVID-19, **you will help the economy recover**.

Cuanto más rápido [COUNTRY] pueda detener la propagación de COVID-19, más rápido las personas volverán a trabajar.

Si usted se vacuna contra el COVID-19, **ayudará a que la economía se recupere**.

[Social approval] Getting vaccinated against COVID-19 shows that you care about others in your community.

If you get vaccinated against COVID-19, **you will be respected by the people in your community**.

Vacunarse contra el COVID-19 demuestra que usted se preocupa por los demás en su comunidad.

Si usted se vacuna contra el COVID-19, **será respetado por las personas en su co-**

munidad.

As shown in Supplementary Table 1, these motivational treatments were cross-randomized with respect to the vaccine information with equal probability.

SI.3 Manipulation checks

To test whether the vaccine information was internalized by respondents, we asked two questions later in the survey about the basic vaccine information received by all treated respondents. This information was not included in the comprehension quiz that appeared with each component of the treatment information. In particular, respondents were asked whether vaccines had yet been approved in some countries and whether there were only minimal side effects of the vaccines. The results in Supplementary Table 2 show that respondents receiving any vaccine information were almost 0.05 probability points more likely to answer the first question correctly, relative to an already high share of respondents in the control group that answered correctly (0.78), and 0.11 probability points more likely to answer the second more difficult question correctly. Although there was some heterogeneity by specific information treatment (even though all treated respondents received the information relating to the questions), all conditions significantly increased vaccine knowledge. The smaller effects associated with the treatments including information about the current level of willingness in a respondent's country suggests a possibility for information overload.

SI.4 Measurement of outcome variables

We focus on four primary outcome variables capturing intention to vaccinate:

1. *Vaccine willingness scale*: a five-point scale ranging from "strongly disagree" (1) to "strongly agree" (5) capturing a respondent's willingness to get vaccinated if a vaccine were available.

	Outcome variables:	
	Know that vaccines were approved	Know that there are minimal side effects
Panel A: Pooled across vaccine information treatments		
Any vaccine information	0.044	0.110
	(0.011)	(0.014)
Outcome range	{0,1}	{0,1}
Control outcome mean	0.78	0.45
Control outcome std. dev.	0.42	0.50
Observations	7,033	7,019
R^2	0.078	0.095
Panel B: By vaccine information treatment condition		
Vaccine	0.035	0.091
	(0.015)	(0.018)
Vaccine + Biden	0.034	0.084
	(0.016)	(0.020)
Vaccine + Herd 60%	0.085	0.137
	(0.019)	(0.025)
Vaccine + Herd 70%	0.078	0.143
	(0.019)	(0.025)
Vaccine + Herd 80%	0.084	0.153
	(0.019)	(0.025)
Vaccine + Herd 60% + Current	0.016	0.151
	(0.021)	(0.025)
Vaccine + Herd 70% + Current	0.030	0.094
	(0.020)	(0.025)
Vaccine + Herd 80% + Current	0.033	0.095
	(0.020)	(0.025)
Outcome range	{0,1}	{0,1}
Control outcome mean	0.78	0.45
Control outcome std. dev.	0.42	0.50
Observations	7,033	7,019
R^2	0.074	0.103

Supplementary Table 2: **Vaccine information comprehension tests.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space), weight observations by the inverse probability of treatment assignment, and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$ from two-sided t tests.

The specific question was: "To what extent do you agree or disagree? If a vaccine against COVID-19 were available, I would get vaccinated. Strongly disagree? Disagree? Neither agree nor disagree? Agree? Strongly agree? Not sure?" In Spanish, this read as: "¿Hasta qué punto está usted de acuerdo o en desacuerdo? Si una vacuna contra el COVID-19 estuviera disponible, yo me vacunaría. Muy en desacuerdo? En desacuerdo? Ni de acuerdo ni en disacuerdo? De acuerdo? Muy de acuerdo? No estoy seguro?"

2. *Willing to take a vaccine*: an indicator coded one for respondents that answered "agree" or "strongly agree" to the previous question.

3. *Months would wait to get vaccinated*: number of months, top-coded at 12, that a respondent would wait to get vaccinated if a COVID-19 vaccine were available to you now. The specific question was: "If a vaccine against COVID-19 were available to you now, how many months would you wait before get vaccinated? Number of month: ...? I would not take a vaccine?" In Spanish, this read as: "Si una vacuna contra el COVID-19 estuviera disponible para usted ahora, ¿cuántos meses esperaría antes de vacunarse? Numero de meses: ...? Nunca tomaría una vacuna?"

4. *Encourage others to get vaccinated*: an indicate coded 1 for respondents that responded "somewhat likely" or "very likely" to the following question: "How likely are you to encourage family or friends to get vaccinated? Never? Unlikely? Somewhat likely? Very likely?" In Spanish, this read as: "¿Qué tan probable es que motive a familiares o amigos a que se vacunen? Nada probable? Poco probable? Algo probable? Muy probable?"

(Portuguese translations are available upon request.) These questions appeared a few screens after

the motivation treatments were delivered. Identical versions of the first three variables were elicited at the beginning of the survey to determine whether a respondent would be screened based on already being willing to take a vaccine (see Methods section for more information about screening). While the first three outcomes were prespecified as primary outcomes, we included the encourage others outcome in light of the positive effect and the high salience of social dynamics in our findings.

Since we could not measure actual vaccination because vaccine rollouts in Latin America were limited at the time of the study, we tried to measure vaccine willingness behaviorally by assessing whether respondents choose to receive additional information about COVID-19 vaccines from the Pan American Health Organization (PAHO) and ultimately clicked through to their website. To measure the latter, we wrote code to verify whether the link on the Qualtrics page was clicked. These variables provide behavioral measures of interest in obtaining further information about COVID-19 vaccines. However, this may only imperfectly correlate with vaccine willingness intentions because further information may not be required to convince individuals after treatment. (At the time of the study, government websites did not have online sign-up portals that would have represented a more direct behavioral measure of interest in taking a vaccine.) Accordingly, we do not focus on this outcome in our main analysis; since it was pre-specified, we report the results for whether a respondent requested to receive the link and actually clicked through below in section SI.14.

SI.5 The main results in regression table form

Supplementary Tables 3-6 report the regression estimates that underlie Figures 4-7.

	Outcome variable:			
	Vaccine willingness scale (1)	Willing to take a vaccine (2)	Months would wait to get vaccinated (reversed) (3)	Encourage others to get vaccinated (4)
Panel A: All countries pooled				
Any vaccine information	0:143	0:046	0:410	0:037
	(0:024)	(0:010)	(0:058)	(0:012)
Outcome range	[1,5]	$f0,1g$	[0,12]	$f0,1g$
Control outcome mean	3.17	0.40	5.78	0.54
Control outcome std. dev.	1.18	0.49	4.38	0.50
Observations	6,951	6,951	6,876	6,659
R^2	0:483	0:492	0:766	0:356
Panel B: Argentina				
Any vaccine information	0:172	0:043	0:449	0:050
	(0:062)	(0:025)	(0:131)	(0:029)
Outcome range	[1,5]	$f0,1g$	[0,12]	$f0,1g$
Control outcome mean	3.02	0.36	5.11	0.47
Control outcome std. dev.	1.18	0.48	4.45	0.50
Observations	1,160	1,160	1,150	1,109
R^2	0:442	0:462	0:801	0:351
Panel C: Brazil				
Any vaccine information	0:200	0:081	0:344	0:027
	(0:052)	(0:022)	(0:148)	(0:028)
Outcome range	[1,5]	$f0,1g$	[0,12]	$f0,1g$
Control outcome mean	3.30	0.42	5.92	0.49
Control outcome std. dev.	1.18	0.49	4.42	0.50
Observations	1,213	1,213	1,187	1,134
R^2	0:603	0:576	0:730	0:400
Panel D: Chile				
Any vaccine information	0:177	0:070	0:392	0:068
	(0:060)	(0:024)	(0:128)	(0:030)
Outcome range	[1,5]	$f0,1g$	[0,12]	$f0,1g$
Control outcome mean	2.89	0.31	4.80	0.46
Control outcome std. dev.	1.23	0.46	4.39	0.50
Observations	1,114	1,114	1,106	1,080
R^2	0:511	0:501	0:810	0:351
Panel E: Colombia				
Any vaccine information	0:187	0:074	0:326	0:067
	(0:059)	(0:024)	(0:119)	(0:028)
Outcome range	[1,5]	$f0,1g$	[0,12]	$f0,1g$
Control outcome mean	3.18	0.39	6.08	0.57
Control outcome std. dev.	1.16	0.49	4.18	0.50
Observations	1,131	1,131	1,120	1,085
R^2	0:460	0:484	0:819	0:378
Panel F: México				
Any vaccine information	0:054	0:002	0:507	0:009
	(0:065)	(0:026)	(0:155)	(0:028)
Outcome range	[1,5]	$f0,1g$	[0,12]	$f0,1g$
Control outcome mean	3.49	0.54	6.77	0.69
Control outcome std. dev.	1.21	0.50	4.26	0.46
Observations	1,102	1,102	1,098	1,075
R^2	0:415	0:477	0:717	0:311
Panel G: Perú				
Any vaccine information	0:061	0:004	0:417	0:004
	(0:055)	(0:026)	(0:169)	(0:029)
Outcome range	[1,5]	$f0,1g$	[0,12]	$f0,1g$
Control outcome mean	3.14	0.39	5.99	0.57
Control outcome std. dev.	1.04	0.49	4.31	0.49
Observations	1,231	1,231	1,215	1,176
R^2	0:404	0:411	0:702	0:296

Supplementary Table 3: **Effect of any vaccine information on vaccine willingness.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space), weight observations by the inverse probability of treatment assignment, and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0:1$, ** denotes $p < 0:05$, *** denotes $p < 0:01$ from two-sided t tests.

	Outcome variable:			
	Vaccine willingness scale (1)	Willing to take a vaccine (2)	Months would wait to get vaccinated (reversed) (3)	Encourage others to get vaccinated (4)
Vaccine	0.148	0.045	0.346	0.047
	(0.032)	(0.013)	(0.083)	(0.016)
Vaccine + Biden	0.121	0.039	0.377	0.018
	(0.037)	(0.015)	(0.095)	(0.018)
Vaccine + Herd 60%	0.092	0.036	0.410	0.029
	(0.046)	(0.019)	(0.121)	(0.022)
Vaccine + Herd 70%	0.187	0.051	0.531	0.042
	(0.047)	(0.020)	(0.120)	(0.022)
Vaccine + Herd 80%	0.131	0.043	0.347	0.011
	(0.045)	(0.019)	(0.126)	(0.022)
Vaccine + Herd 60% + Current	0.183	0.081	0.520	0.079
	(0.046)	(0.020)	(0.126)	(0.022)
Vaccine + Herd 70% + Current	0.183	0.067	0.408	0.064
	(0.046)	(0.020)	(0.119)	(0.022)
Vaccine + Herd 80% + Current	0.102	0.010	0.510	0.010
	(0.049)	(0.020)	(0.131)	(0.022)
Outcome range	[1,5]	$f0,1g$	[0,12]	$f0,1g$
Control outcome mean	3.17	0.40	5.78	0.54
Control outcome std. dev.	1.18	0.49	4.38	0.50
Observations	6,951	6,951	6,876	6,659
R^2	0.433	0.442	0.716	0.339

Supplementary Table 4: **Effect of different types of vaccine information on vaccine willingness.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space), weight observations by the inverse probability of treatment assignment, and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$ from two-sided t tests.

	Outcome variable:			
	Vaccine willingness scale (1)	Willing to take a vaccine (2)	Months would wait to get vaccinated (reversed) (3)	Encourage others to get vaccinated (4)
Current	0:140	0:079	0:105	0:076
	(0:064)	(0:027)	(0:166)	(0:029)
Current rate below herd opinion	0:088	0:027	0:047	0:024
	(0:057)	(0:023)	(0:146)	(0:027)
Current Current rate below herd opinion	0:185	0:104	0:115	0:084
	(0:083)	(0:034)	(0:214)	(0:037)
Outcome range	[1,5]	$f0,1g$	[0,12]	$f0,1g$
Control outcome mean	3.30	0.45	6.04	0.53
Control outcome std. dev.	1.20	0.50	4.49	0.50
Observations	2,955	2,955	2,919	2,821
R^2	0:441	0:444	0:712	0:364

Supplementary Table 5: **The effect of being informed that the current rate of vaccination willingness in the population is above/below the rate required for herd immunity.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space) and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0:1$, ** denotes $p < 0:05$, *** denotes $p < 0:01$ from two-sided t tests.

	Outcome variable:			
	Vaccine willingness scale (1)	Willing to take a vaccine (2)	Months would wait to get vaccinated (reversed) (3)	Encourage others to get vaccinated (4)
Panel A: All countries pooled				
Altruism	0:022	0:014	0:074	0:018
	(0:030)	(0:013)	(0:080)	(0:014)
Economic recovery	0:051	0:021	0:011	0:030
	(0:030)	(0:013)	(0:080)	(0:014)
Social approval	0:105	0:046	0:252	0:042
	(0:030)	(0:013)	(0:084)	(0:014)
Outcome range	[1,5]	f0,1g	[0,12]	f0,1g
Control outcome mean	3.24	0.42	6.07	0.55
Control outcome std. dev.	1.17	0.49	4.41	0.50
Observations	6,951	6,951	6,876	6,659
R^2	0:442	0:456	0:728	0:337
Panel B: Argentina				
Altruism	0:004	0:016	0:251	0:017
	(0:073)	(0:031)	(0:185)	(0:036)
Economic recovery	0:115	0:034	0:004	0:005
	(0:069)	(0:031)	(0:180)	(0:035)
Social approval	0:076	0:038	0:244	0:013
	(0:076)	(0:033)	(0:178)	(0:037)
Outcome range	[1,5]	f0,1g	[0,12]	f0,1g
Control outcome mean	3.14	0.40	5.76	0.52
Control outcome std. dev.	1.11	0.49	4.40	0.50
Observations	1,160	1,160	1,150	1,109
R^2	0:417	0:441	0:773	0:330
Panel C: Brazil				
Altruism	0:052	0:004	0:112	0:017
	(0:063)	(0:027)	(0:214)	(0:033)
Economic recovery	0:024	0:019	0:435	0:035
	(0:063)	(0:028)	(0:196)	(0:033)
Social approval	0:110	0:051	0:633	0:028
	(0:060)	(0:027)	(0:208)	(0:034)
Outcome range	[1,5]	f0,1g	[0,12]	f0,1g
Control outcome mean	3.41	0.46	5.97	0.49
Control outcome std. dev.	1.19	0.50	4.45	0.50
Observations	1,213	1,213	1,187	1,134
R^2	0:580	0:546	0:683	0:387
Panel D: Chile				
Altruism	0:164	0:086	0:061	0:042
	(0:080)	(0:030)	(0:172)	(0:036)
Economic recovery	0:145	0:072	0:153	0:069
	(0:079)	(0:030)	(0:191)	(0:035)
Social approval	0:263	0:126	0:408	0:076
	(0:079)	(0:030)	(0:197)	(0:036)
Outcome range	[1,5]	f0,1g	[0,12]	f0,1g
Control outcome mean	2.92	0.31	5.17	0.49
Control outcome std. dev.	1.22	0.46	4.53	0.50
Observations	1,114	1,114	1,106	1,080
R^2	0:463	0:472	0:760	0:330
Panel E: Colombia				
Altruism	0:035	0:032	0:666	0:077
	(0:078)	(0:032)	(0:167)	(0:034)
Economic recovery	0:017	0:012	0:138	0:042
	(0:076)	(0:032)	(0:172)	(0:034)
Social approval	0:117	0:045	0:256	0:087
	(0:075)	(0:031)	(0:179)	(0:035)
Outcome range	[1,5]	f0,1g	[0,12]	f0,1g
Control outcome mean	3.26	0.41	5.96	0.57
Control outcome std. dev.	1.16	0.49	4.47	0.50
Observations	1,131	1,131	1,120	1,085
R^2	0:424	0:449	0:784	0:343
Panel F: México				
Altruism	0:007	0:001	0:121	0:045
	(0:082)	(0:033)	(0:212)	(0:035)
Economic recovery	0:004	0:002	0:245	0:045
	(0:090)	(0:034)	(0:225)	(0:035)
Social approval	0:035	0:006	0:015	0:047
	(0:083)	(0:033)	(0:226)	(0:036)
Outcome range	[1,5]	f0,1g	[0,12]	f0,1g
Control outcome mean	3.54	0.55	7.23	0.66
Control outcome std. dev.	1.16	0.50	4.02	0.48
Observations	1,102	1,102	1,098	1,075
R^2	0:349	0:422	0:673	0:293
Panel G: Perú				
Altruism	0:001	0:006	0:486	0:050
	(0:071)	(0:033)	(0:214)	(0:035)
Economic recovery	0:023	0:004	0:494	0:012
	(0:069)	(0:032)	(0:199)	(0:036)
Social approval	0:043	0:014	0:006	0:009
	(0:072)	(0:033)	(0:227)	(0:035)
Outcome range	[1,5]	f0,1g	[0,12]	f0,1g
Control outcome mean	3.16	0.39	6.35	0.58
Control outcome std. dev.	1.08	0.49	4.34	0.49
Observations	1,231	1,231	1,215	1,176
R^2	0:360	0:369	0:679	0:291

Supplementary Table 6: **Effect of different types of motivational message on vaccine willingness.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space) and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0:1$, ** denotes $p < 0:05$, *** denotes $p < 0:01$ from two-sided t tests.

SI.6 Identification checks

As noted in the Methods section, our estimation of treatment effects relies on two assumptions: SUTVA and unconfounded treatment assignment. While SUTVA almost certainly holds in our context of online surveys where around 1,000 individuals were randomly assigned treatments in each country, there remains a risk that the random assignment of treatments could be broken by differences in attrition—that is to say in the likelihood of continuing the survey to answer post-treatment outcomes across—across experimental groups. We examine differences in attrition between treatment groups and the control group by using our main regression specifications to examine whether treatments differentially affected the probability of answering post-treatment outcome questions.

Supplementary Table 7 reports the results for receiving any vaccine information. Panel A pools across countries and indicates that respondents that received any vaccine information were around 2 percentage points less likely to answer our main outcome questions. Panels B-G indicate that this difference is driven primarily by respondents in Colombia and Perú. Within the pooled sample, the difference in answering our three main outcome questions between treated and control respondents is statistically significant in each case, although the difference is relatively small in magnitude. Among the treated respondents, we find no evidence of differential attrition between treatment arms: for each of our three main outcomes, we fail to reject the null hypothesis that the response rate is identical across the eight different treatment groups ($p = 0.47$, $p = 0.40$, and $p = 0.64$, respectively).

We next turn to attrition for the motivational message treatments reported in Supplementary Table 8. Focusing again on the estimates that pool across countries in panel A, we observe more

	Outcome variable:		
	Answered vaccine willingness scale (1)	Answered wait until vaccination (2)	Answered encourage others to get vaccinated (3)
Panel A: All countries pooled			
Any vaccine information	0:017	0:017	0:023
	(0:003)	(0:004)	(0:006)
Outcome range	$f0,1g$	$f0,1g$	$f0,1g$
Control outcome mean	0.99	0.98	0.95
Control outcome std. dev.	0.10	0.15	0.21
Observations	7,125	7,125	7,125
R^2	0:032	0:040	0:046
Panel B: Argentina			
Any vaccine information	0:002	0:003	0:017
	(0:010)	(0:012)	(0:016)
Outcome range	$f0,1g$	$f0,1g$	$f0,1g$
Control outcome mean	0.98	0.97	0.95
Control outcome std. dev.	0.14	0.16	0.22
Observations	1,184	1,184	1,184
R^2	0:025	0:021	0:029
Panel C: Brazil			
Any vaccine information	0:023	0:012	0:011
	(0:008)	(0:014)	(0:019)
Outcome range	$f0,1g$	$f0,1g$	$f0,1g$
Control outcome mean	0.99	0.96	0.92
Control outcome std. dev.	0.10	0.20	0.28
Observations	1,248	1,248	1,248
R^2	0:033	0:042	0:040
Panel D: Chile			
Any vaccine information	0:019	0:013	0:015
	(0:010)	(0:012)	(0:016)
Outcome range	$f0,1g$	$f0,1g$	$f0,1g$
Control outcome mean	0.98	0.97	0.95
Control outcome std. dev.	0.13	0.17	0.22
Observations	1,149	1,149	1,149
R^2	0:031	0:048	0:036
Panel E: Colombia			
Any vaccine information	0:019	0:026	0:033
	(0:007)	(0:009)	(0:014)
Outcome range	$f0,1g$	$f0,1g$	$f0,1g$
Control outcome mean	1.00	0.99	0.97
Control outcome std. dev.	0.06	0.09	0.18
Observations	1,154	1,154	1,154
R^2	0:030	0:029	0:041
Panel F: México			
Any vaccine information	0:008	0:013	0:017
	(0:006)	(0:007)	(0:011)
Outcome range	$f0,1g$	$f0,1g$	$f0,1g$
Control outcome mean	0.99	0.99	0.98
Control outcome std. dev.	0.09	0.09	0.16
Observations	1,119	1,119	1,119
R^2	0:053	0:047	0:055
Panel G: Perú			
Any vaccine information	0:030	0:032	0:044
	(0:008)	(0:011)	(0:014)
Outcome range	$f0,1g$	$f0,1g$	$f0,1g$
Control outcome mean	0.99	0.98	0.96
Control outcome std. dev.	0.09	0.13	0.20
Observations	1,271	1,271	1,271
R^2	0:030	0:039	0:059

Supplementary Table 7: **Effect of receiving any vaccination information on responding to main post-treatment outcome questions.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space), weight observations by the inverse probability of treatment assignment, and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0:1$, ** denotes $p < 0:05$, *** denotes $p < 0:01$ from two-sided t tests.

substantial differences in attrition between the message and control groups: for each message, the probability of answering the post-treatment questions is around 5 percentage points higher. Again, we fail to reject the null hypothesis that there is no difference in attrition between each type of message treatment ($p = 0.42$).

These differences raise the concern that the estimates could be biased if certain types of respondent are more likely to attrite when they receive certain treatment conditions. To gauge whether such differential attrition is likely to bias our estimates, we first examine balance across pre-treatment covariates before and after respondents had the opportunity to attrite. Column (1) of Supplementary Tables 9 and 10 examines balance at the point of assignment—before attrition could kick in. Consistent with the integrity of the randomized assignment of treatment, differences between treatment and control groups are consistent with chance: of 81 pre-treatment covariates, we reject at the 10% level the null hypothesis that the mean in each experimental (treatment or control) group is equal in only 4 cases for the vaccine information treatments and in 14 cases for the motivation treatments. Columns (2)-(4) next examine how differences in pre-treatment covariates change once attrition by the time that different outcome variables are reached is accounted for. If differences in attrition across experimental groups break the randomization because attrition did not occur at random within groups, we should expect differences to emerge at this point. However, the results indicate that significant imbalances do not arise due to attrition: we again observe only 4 instances where we can reject the null hypothesis of equality across experimental groups in the case of the vaccine information treatments; while there is some variation across outcome variables for the motivational messages, the overall number of imbalances is again similar in the datasets

	Outcome variable:		
	Answered vaccine willingness scale (1)	Answered wait until vaccination (2)	Answered encourage others to get vaccinated (3)
Panel A: All countries pooled			
Altruism	0.050	0.052	0.052
	(0.006)	(0.007)	(0.009)
Economic recovery	0.045	0.046	0.047
	(0.006)	(0.007)	(0.009)
Social approval	0.049	0.052	0.052
	(0.006)	(0.007)	(0.009)
Outcome range	[0,1]	[0,1]	[0,1]
Control outcome mean	0.94	0.93	0.90
Control outcome std. dev.	0.24	0.26	0.30
Observations	7,125	7,125	7,125
R^2	0.046	0.043	0.039
Panel B: Argentina			
Altruism	0.041	0.043	0.044
	(0.015)	(0.017)	(0.022)
Economic recovery	0.044	0.053	0.041
	(0.014)	(0.016)	(0.023)
Social approval	0.052	0.058	0.066
	(0.014)	(0.016)	(0.021)
Outcome range	[0,1]	[0,1]	[0,1]
Control outcome mean	0.95	0.93	0.90
Control outcome std. dev.	0.22	0.25	0.30
Observations	1,184	1,184	1,184
R^2	0.043	0.037	0.039
Panel C: Brazil			
Altruism	0.048	0.039	0.023
	(0.015)	(0.018)	(0.024)
Economic recovery	0.036	0.017	0.022
	(0.016)	(0.020)	(0.024)
Social approval	0.048	0.044	0.032
	(0.015)	(0.018)	(0.023)
Outcome range	[0,1]	[0,1]	[0,1]
Control outcome mean	0.94	0.93	0.89
Control outcome std. dev.	0.24	0.26	0.32
Observations	1,248	1,248	1,248
R^2	0.038	0.034	0.024
Panel D: Chile			
Altruism	0.056	0.062	0.057
	(0.016)	(0.017)	(0.020)
Economic recovery	0.058	0.053	0.044
	(0.016)	(0.018)	(0.021)
Social approval	0.044	0.054	0.048
	(0.017)	(0.018)	(0.021)
Outcome range	[0,1]	[0,1]	[0,1]
Control outcome mean	0.93	0.92	0.90
Control outcome std. dev.	0.26	0.27	0.30
Observations	1,149	1,149	1,149
R^2	0.046	0.050	0.031
Panel E: Colombia			
Altruism	0.048	0.067	0.069
	(0.013)	(0.016)	(0.021)
Economic recovery	0.038	0.056	0.057
	(0.014)	(0.017)	(0.022)
Social approval	0.044	0.055	0.060
	(0.014)	(0.017)	(0.022)
Outcome range	[0,1]	[0,1]	[0,1]
Control outcome mean	0.95	0.93	0.89
Control outcome std. dev.	0.23	0.26	0.31
Observations	1,154	1,154	1,154
R^2	0.050	0.050	0.035
Panel F: México			
Altruism	0.040	0.043	0.057
	(0.013)	(0.013)	(0.017)
Economic recovery	0.038	0.034	0.050
	(0.013)	(0.015)	(0.018)
Social approval	0.041	0.040	0.038
	(0.013)	(0.014)	(0.019)
Outcome range	[0,1]	[0,1]	[0,1]
Control outcome mean	0.95	0.95	0.92
Control outcome std. dev.	0.21	0.22	0.27
Observations	1,119	1,119	1,119
R^2	0.058	0.050	0.062
Panel G: Perú			
Altruism	0.063	0.056	0.064
	(0.016)	(0.019)	(0.022)
Economic recovery	0.055	0.061	0.068
	(0.016)	(0.018)	(0.022)
Social approval	0.061	0.061	0.069
	(0.017)	(0.019)	(0.023)
Outcome range	[0,1]	[0,1]	[0,1]
Control outcome mean	0.92	0.91	0.88
Control outcome std. dev.	0.26	0.28	0.33
Observations	1,271	1,271	1,271
R^2	0.048	0.037	0.046

Supplementary Table 8: **Effect of motivational messages on responding to main post-treatment outcome questions.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space) and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$ from two-sided t tests.

with and without attrition. In sum, this evidence suggests that the individuals that differentially attrited in certain experimental groups are not systematically different from those that did not.

Nevertheless, it remains possible that the respondents that attrited upon receiving a specific treatment condition could differ in terms of unobserved characteristics that might influence potential outcomes. To address this concerns, our second approach uses the non-parametric bounding approach proposed Lee[21] to examine how our estimates change in the case of severe forms of selection into responding to post-treatment questions. When attrition is greater in the treatment group than the comparison group, the upper (lower) bound on the treatment effect is obtained by trimming the most extreme values from the lower (upper) tail of the outcome distribution in the treatment group until the groups are of equal size (adjusting for probability of treatment assignment); the reverse holds when attrition is greater in the comparison group. This procedure, which does not rely on statistical assumptions, allows the researcher to compute a 95% confidence interval for the treatment effect that captures both uncertainty due to random assignment as well as uncertainty due to the potential selection bias induced by attrition. To implement this bounding approach, we focus on unadjusted comparisons between treatment and control groups (with inverse probability of treatment assignment weights), which exclude the fixed effects used to increase the precision of our estimates because analytic standard errors could not be obtained. Due to our randomization, the exclusion of such fixed effects does not induce bias.

Supplementary Tables 11 and 12 report the 95% confidence intervals for the bounds on the effects of any vaccine treatment and the different motivational treatments in the sample that pools across countries. We do not report results for differences between information treatments (i.e. the

Pre-treatment covariate	Sample for which balance is tested: Received treatment (1)	Answered vaccine willingness scale (2)	Answered wait until vaccination (3)	Answered encourage others to get vaccinated (4)
Education - None	0.603	0.529	0.649	0.662
Education - Primary	0.683	0.783	0.754	0.77
Education - Secondary	0.366	0.387	0.515	0.543
Education - Other Higher	0.378	0.33	0.416	0.397
Education - University	0.124	0.21	0.239	0.272
Gender	0.386	0.42	0.358	0.437
Running Water in Home	0.72	0.837	0.923	0.839
Sewage in Home	0.544	0.507	0.505	0.631
Electricity in Home	0.202	0.261	0.359	0.214
No Running Water, Sewage, or Electricity in Home	0.824	0.741	0.772	0.345
COVID News Consumption - TV	0.462	0.357	0.409	0.35
COVID News Consumption - Radio	0.736	0.683	0.733	0.532
COVID News Consumption - Print	0.529	0.493	0.556	0.691
COVID News Consumption - Word of Mouth	0.942	0.912	0.905	0.885
COVID News Consumption - WhatsApp	0.525	0.761	0.771	0.762
COVID News Consumption - Social Media	0.812	0.829	0.806	0.846
COVID News Consumption - News Websites	0.627	0.494	0.437	0.284
COVID Severity in Country	0.468	0.533	0.599	0.601
Herd Immunity Prior	0.237	0.289	0.275	0.291
General Vaccine Hesitancy - Protect from Disease	0.704	0.808	0.83	0.814
General Vaccine Hesitancy - Good for Community	0.994	0.998	0.996	0.996
General Vaccine Hesitancy - Trust in Government	0.143	0.247	0.313	0.339
General Vaccine Hesitancy - Follow Doctor Instructions	0.725	0.713	0.665	0.593
General Vaccine Hesitancy - Trust in International Medical Experts	0.793	0.738	0.744	0.6
General Vaccine Hesitancy - Refused Vaccine	0.567	0.529	0.542	0.622
COVID Hesitancy Reasons - Side Effects	0.421	0.276	0.275	0.207
COVID Hesitancy Reasons - Vaccine Gives COVID	0.223	0.224	0.311	0.344
COVID Hesitancy Reasons - Produced Too Quickly	0.366	0.256	0.213	0.23
COVID Hesitancy Reasons - Not Effective	0.334	0.261	0.201	0.182
COVID Hesitancy Reasons - Not At Risk of Getting COVID	0.362	0.429	0.343	0.268
COVID Hesitancy Reasons - Against Vaccines Generally	0.786	0.833	0.848	0.9
COVID Hesitancy Reasons - Prefer 'Natural' Immunity	0.197	0.243	0.305	0.232
COVID Hesitancy Reasons - Already Had COVID	0.568	0.558	0.633	0.597
COVID Hesitancy Reasons - Don't Trust Government	0.106	0.137	0.118	0.199
COVID Hesitancy Reasons - Financial Concerns	0.484	0.528	0.587	0.658
COVID Hesitancy Reasons - Other	0.594	0.602	0.642	0.517
Comorbidities - None	0.47	0.453	0.413	0.443
Comorbidities - Diabetes	0.265	0.233	0.318	0.298
Comorbidities - Cardiovascular Diseases	0.47	0.374	0.385	0.449
Comorbidities - Obesity	0.691	0.717	0.584	0.72
Comorbidities - Autoimmune Diseases	0.795	0.779	0.8	0.803
Comorbidities - Chronic Obstructive Pulmonary Disease	0.128	0.186	0.197	0.22
Comorbidities - Prefer Not To Share	0.48	0.582	0.513	0.705
Had COVID	0.952	0.987	0.976	0.979
Know Someone Seriously Ill or Passed Away COVID	0.325	0.342	0.414	0.567
COVID Economic Situation	0.337	0.425	0.446	0.228
Government Vaccine Priority	0.791	0.793	0.834	0.824
Left/Right Political Scale	0.262	0.188	0.145	0.102
Satisfied with President COVID Management	0.305	0.334	0.466	0.546
Satisfied with Mayor COVID Management	0.017**	0.022**	0.014**	0.011**
Satisfied with Health Ministry COVID Management	0.432	0.515	0.569	0.664
Would Vote for Current President	0.416	0.325	0.331	0.297
Would Vote for Current Mayor	0.772	0.697	0.581	0.538
Trust in Current President	0.332	0.459	0.534	0.539
Trust in Current Mayor	0.048**	0.097*	0.083*	0.081*
Trust in National Health Ministry	0.492	0.603	0.63	0.763
Trust in National Medical Association	0.95	0.931	0.902	0.94
Trust in Left-Wing Newspaper	0.661	0.697	0.69	0.75
Trust in Right-Wing Newspaper	0.66	0.814	0.793	0.827
Trust in Religious Leader	0.718	0.763	0.738	0.696
Trust in Local Healthcare	0.578	0.459	0.503	0.649
Trust in Armed Forces	0.423	0.439	0.476	0.578
Trust in Civil Society Organizations	0.77	0.8	0.739	0.72
Trust in Government of China	0.331	0.433	0.478	0.502
Trust in Government of U.S. Under Trump	0.031**	0.024**	0.03**	0.032**
Trust in Government of U.S. Under Biden	0.26	0.261	0.316	0.327
Trust in Government of U.K.	0.418	0.394	0.405	0.59
Trust in Government of Russia	0.242	0.26	0.232	0.231
Meeting Indoor With Non-Family Contributes to COVID	0.165	0.221	0.257	0.297
Risk Aversion 1	0.373	0.458	0.419	0.37
Risk Aversion 2	0.09*	0.159	0.179	0.116
Risk Aversion 3	0.459	0.631	0.662	0.625
Risk Aversion 4	0.479	0.6	0.52	0.345
Risk Aversion 5	0.873	0.894	0.897	0.855
Discount Rate 1	0.925	0.941	0.958	0.975
Discount Rate 2	0.842	0.892	0.848	0.848
Discount Rate 3	0.737	0.79	0.799	0.878
Discount Rate 4	0.411	0.497	0.524	0.588
Donation Amount	0.241	0.296	0.3	0.36
Important to Receive Respect and Recognition	0.756	0.784	0.716	0.764
Social Influence	0.103	0.064*	0.063*	0.091*

Supplementary Table 9: **Balance of vaccine information treatments over pre-treatment covariates.** Each number is the p value associated with the test of the null hypothesis that no treatment condition differs from the control group in terms of a given pre-treatment covariate. All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space), weight observations by the inverse probability of treatment assignment, and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$ from two-sided t tests.

Pre-treatment covariate	Sample for which balance is tested: Received treatment (1)	Answered vaccine willingness scale (2)	Answered wait until vaccination (3)	Answered encourage others to get vaccinated (4)
Education - None	0.799	0.458	0.455	0.467
Education - Primary	0.159	0.174	0.201	0.17
Education - Secondary	0.636	0.664	0.695	0.873
Education - Other Higher	0.828	0.856	0.823	0.961
Education - University	0.306	0.32	0.35	0.369
Gender	0.521	0.437	0.492	0.375
Running Water in Home	0.182	0.201	0.209	0.249
Sewage in Home	0.825	0.851	0.816	0.757
Electricity in Home	0.986	0.981	0.983	0.942
No Running Water, Sewage, or Electricity in Home	0.205	0.173	0.222	0.253
COVID News Consumption - TV	0.734	0.741	0.829	0.892
COVID News Consumption - Radio	0.484	0.486	0.487	0.52
COVID News Consumption - Print	0.946	0.908	0.893	0.89
COVID News Consumption - Word of Mouth	0.474	0.413	0.382	0.5
COVID News Consumption - WhatsApp	0.937	0.938	0.91	0.693
COVID News Consumption - Social Media	0.834	0.807	0.819	0.86
COVID News Consumption - News Websites	0.728	0.692	0.705	0.609
COVID Severity in Country	0.241	0.19	0.216	0.205
Herd Immunity Prior	0.211	0.308	0.387	0.275
General Vaccine Hesitancy - Protect from Disease	0.601	0.657	0.657	0.612
General Vaccine Hesitancy - Good for Community	0.209	0.301	0.263	0.272
General Vaccine Hesitancy - Trust in Government	0.385	0.462	0.399	0.516
General Vaccine Hesitancy - Follow Doctor Instructions	0.59	0.605	0.605	0.64
General Vaccine Hesitancy - Trust in International Medical Experts	0.67	0.638	0.594	0.581
General Vaccine Hesitancy - Refused Vaccine	0.988	0.965	0.978	0.932
COVID Hesitancy Reasons - Side Effects	0.99	0.98	0.98	0.955
COVID Hesitancy Reasons - Vaccine Gives COVID	0.003***	0.002***	0.003***	0.006***
COVID Hesitancy Reasons - Produced Too Quickly	0.153	0.117	0.09*	0.119
COVID Hesitancy Reasons - Not Effective	0.154	0.181	0.21	0.33
COVID Hesitancy Reasons - Not At Risk of Getting COVID	0.575	0.643	0.601	0.586
COVID Hesitancy Reasons - Against Vaccines Generally	0.867	0.858	0.935	0.842
COVID Hesitancy Reasons - Prefer 'Natural' Immunity	0.895	0.875	0.9	0.868
COVID Hesitancy Reasons - Already Had COVID	0.767	0.846	0.839	0.835
COVID Hesitancy Reasons - Don't Trust Government	0.248	0.556	0.549	0.568
COVID Hesitancy Reasons - Financial Concerns	0.245	0.322	0.324	0.349
COVID Hesitancy Reasons - Other	0.525	0.563	0.514	0.35
Comorbidities - None	0.033**	0.027**	0.029**	0.035**
Comorbidities - Diabetes	0.633	0.546	0.609	0.618
Comorbidities - Cardiovascular Diseases	0.879	0.717	0.647	0.506
Comorbidities - Obesity	0.239	0.264	0.231	0.324
Comorbidities - Autoimmune Diseases	0.898	0.852	0.859	0.93
Comorbidities - Chronic Obstructive Pulmonary Disease	0.572	0.536	0.537	0.761
Comorbidities - Prefer Not To Share	0.036**	0.059*	0.054*	0.03**
Had COVID	0.567	0.575	0.645	0.682
Know Someone Seriously Ill or Passed Away COVID	0.132	0.119	0.119	0.159
COVID Economic Situation	0.109	0.171	0.204	0.241
Government Vaccine Priority	0.112	0.082*	0.088*	0.087*
Left/Right Political Scale	0.798	0.818	0.793	0.791
Satisfied with President COVID Management	0.291	0.259	0.269	0.338
Satisfied with Mayor COVID Management	0.236	0.231	0.243	0.239
Satisfied with Health Ministry COVID Management	0.875	0.841	0.829	0.836
Would Vote for Current President	0.011**	0.013**	0.009***	0.014**
Would Vote for Current Mayor	0.542	0.573	0.696	0.603
Trust in Current President	0.681	0.706	0.701	0.737
Trust in Current Mayor	0.621	0.709	0.737	0.669
Trust in National Health Ministry	0.885	0.849	0.886	0.831
Trust in National Medical Association	0.07*	0.11	0.171	0.213
Trust in Left-Wing Newspaper	0.546	0.53	0.507	0.777
Trust in Right-Wing Newspaper	0.089*	0.106	0.099*	0.134
Trust in Religious Leader	0.832	0.818	0.8	0.751
Trust in Local Healthcare	0.028**	0.038**	0.058*	0.071*
Trust in Armed Forces	0.208	0.181	0.177	0.363
Trust in Civil Society Organizations	0.069*	0.09*	0.099*	0.141
Trust in Government of China	0.133	0.082*	0.057*	0.191
Trust in Government of U.S. Under Trump	0.579	0.578	0.555	0.742
Trust in Government of U.S. Under Biden	0.026**	0.005***	0.007***	0.018**
Trust in Government of U.K.	0.458	0.437	0.434	0.664
Trust in Government of Russia	0.642	0.884	0.879	0.791
Meeting Indoor With Non-Family Contributes to COVID	0.449	0.433	0.437	0.337
Risk Aversion 1	0.413	0.341	0.285	0.226
Risk Aversion 2	0.676	0.785	0.808	0.784
Risk Aversion 3	0.354	0.535	0.566	0.644
Risk Aversion 4	0.75	0.922	0.92	0.989
Risk Aversion 5	0.148	0.441	0.525	0.516
Discount Rate 1	0.058*	0.04**	0.049**	0.065*
Discount Rate 2	0.011**	0.013**	0.022**	0.022**
Discount Rate 3	0.006***	0.015**	0.022**	0.032**
Discount Rate 4	0.021**	0.065*	0.087*	0.106
Donation Amount	0.545	0.513	0.51	0.62
Important to Receive Respect and Recognition	0.042**	0.06*	0.083*	0.148
Social Influence	0.246	0.195	0.156	0.208

Supplementary Table 10: **Balance of motivational messages over pre-treatment covariates.** Each number is the p value associated with the test of the null hypothesis that no treatment condition differs from the control group in terms of a given pre-treatment covariate. All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space) and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$ from two-sided t tests.

	Outcome variable:			
	Vaccine willingness scale (1)	Willing to take a vaccine (2)	Months would wait to get vaccinated (reversed) (3)	Encourage others to get vaccinated (4)
Any vaccine information effect 95% confidence interval	[0.051, 0.217]	[0.017, 0.074]	[0.117, 0.686]	[0.003, 0.070]
Outcome range	[1,5]	$f0,1g$	[0,12]	$f0,1g$
Control outcome mean	3.24	0.42	5.98	0.56
Control outcome std. dev.	1.18	0.49	4.43	0.50
Number of selected observations	6,986	6,986	6,910	6,706
Share of control observations trimmed	0.017	0.017	0.017	0.024

Supplementary Table 11: **Lee bounds on the effect of any vaccine information on vaccine willingness.** All 95% confidence intervals for the treatment effect are based on Lee bound estimates, where observations are weighted by the inverse probability of treatment assignment. Confidence intervals are based on robust standard errors.

results corresponding to Supplementary Tables 4 and 5) because there is no evidence of differential between information treatments (see above). Given the limited levels of differential attrition, the confidence interval for receiving any vaccine information unsurprisingly show that the Lee bounds are relatively tight: for each estimate, the 95% confidence interval is only slightly larger than for our main estimates, and the lower bound remains statistically significantly different from zero in each case. Consequently, differences in attrition cannot account for the positive effects of basic vaccine information on vaccine willingness.

Turning to the motivational messages in Supplementary Table 12, the 95% confidence intervals for the treatment effects of each message are larger due to the greater differences in attrition between the control and message groups. Panels A-C examine each motivational message separately relative to the control group, given that Lee bounds cannot be computed for multiple treatments simultaneously. The results for the social approval message show that the lower bound includes effects that are statistically indistinguishable from zero, although the upper bound equally

	Outcome variable:			
	Vaccine willingness scale (1)	Willing to take a vaccine (2)	Months would wait to get vaccinated (reversed) (3)	Encourage others to get vaccinated (4)
Panel A: Altruism message				
Altruism effect 95% confidence interval	[-0.146, 0.209]	[-0.047, 0.064]	[-0.596, 0.598]	[-0.042, 0.079]
Outcome range	[1,5]	{0,1}	[0,12]	{0,1}
Control outcome mean	3.25	0.42	6.07	0.56
Control outcome std. dev.	1.18	0.49	4.43	0.50
Number of selected observations	3,471	3,471	3,431	3,321
Share of control observations trimmed	0.050	0.050	0.053	0.056
Panel B: Economic recovery message				
Economic recovery effect 95% confidence interval	[-0.107, 0.231]	[-0.037, 0.070]	[-0.606, 0.520]	[-0.027, 0.087]
Outcome range	[1,5]	{0,1}	[0,12]	{0,1}
Control outcome mean	3.26	0.43	6.05	0.56
Control outcome std. dev.	1.18	0.49	4.45	0.50
Number of selected observations	3,466	3,466	3,424	3,313
Share of control observations trimmed	0.047	0.047	0.048	0.051
Panel C: Social approval message				
Social approval effect 95% confidence interval	[-0.066, 0.283]	[-0.015, 0.095]	[-0.457, 0.753]	[-0.018, 0.102]
Outcome range	[1,5]	{0,1}	[0,12]	{0,1}
Control outcome mean	3.28	0.44	6.14	0.57
Control outcome std. dev.	1.16	0.50	4.44	0.50
Number of selected observations	3,480	3,480	3,443	3,331
Share of control observations trimmed	0.049	0.049	0.053	0.056

Supplementary Table 12: **Lee bounds on the effect of different types of motivational message on vaccine willingness.** All 95% confidence intervals for the treatment effect are based on Lee bound estimates. Confidence intervals are based on robust standard errors.

includes effects that are much larger than our main estimates suggest. While differential attrition increases uncertainty about the exact effect of the social approval message, there are two important reasons to be confident that social approval produces positive effects on vaccine willingness. First, as Supplementary Table 10 shows, attrition does not induce observable differences between the social approval and control groups. This suggests that attrition plausibly occurs somewhat randomly within treatment groups, implying that it is not the most hesitant respondents that differentially attrited from the control group—the case that corresponds to the lower Lee bound. Second, because there are no differences in attrition between motivational message groups, we can estimate the effect of the the social approval treatment relative to the altruistic treatment, which seems to have had limited impact on respondents. The results in Supplementary Table 13, which compares these two groups, indicates that the social approval treatment produced a significantly larger effect than the altruistic treatment. This adds further weight to the conclusion that social approval messaging could produce substantial positive effects on vaccine uptake.

SI.7 Differential effects of vaccine information treatments on reasons given for reducing hesitancy

Among the subset of respondents that received an information treatment, we later asked how the treatment affected their reasons for being hesitant. Since this question was only asked of treated respondents, we examine the effect of the more detailed information treatments relative to the effect of the basic vaccine information. The basic vaccine information group means at the foot of Supplementary Table 14 show that respondents became less hesitant along a number of dimensions, while the treatment effect estimates indicate that no additional information treatment condition

	Outcome variable:			
	Vaccine willingness scale	Willing to take a vaccine	Months would wait to get vaccinated (reversed)	Encourage others to get vaccinated
	(1)	(2)	(3)	(4)
Social approval	0.077**	0.031**	0.188**	0.024*
	(0.031)	(0.013)	(0.083)	(0.014)
Outcome range	[1,5]	$f0,1g$	[0,12]	$f0,1g$
Control outcome mean	3.29	0.45	6.14	0.58
Control outcome std. dev.	1.17	0.50	4.45	0.49
Observations	3,485	3,485	3,452	3,346
R^2	0.446	0.466	0.724	0.348

Supplementary Table 13: **The effect of social approval versus altruistic motivational messages on vaccine willingness.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space) and are estimated using OLS. The baseline category is the altruism message treatment. Robust standard errors are in parentheses. * denotes $p < 0:1$, ** denotes $p < 0:05$, *** denotes $p < 0:01$ from two-sided t tests.

systematically affected the reasons that individuals stated for becoming less hesitant. In line with the lack of differential effect of the information treatments on our vaccine willingness outcomes, the results suggest that basic vaccine information was sufficient to significantly reduce vaccine hesitancy and that further information did not make individuals less hesitant.

SI.8 Heterogeneity in the effect of basic vaccine information

To understand which types of individuals may be most responsive to exposure to basic vaccine information, we examine heterogeneity in treatment effects across demographic subgroups about which policymakers can conceivably obtain data at scale—and could thus microtarget campaign messaging towards. Specifically, we consider a respondent's sex, age category, highest level of completed education, socioeconomic class, and intention to vote for the President. Using the

	Outcome variable:								
	Less worried about side effects (1)	Less worried about getting COVID-19 from vaccine (2)	Less worried about speed of development (3)	Less worried about vaccine ineffectiveness (4)	No getting vaccinated even if low risk (5)	No longer wants immunity from infection (6)	Now getting vaccinated even if already had COVID-19 (7)	Now more trusting of government (8)	Less worried about cost (9)
Vaccine + Biden	0:000	0:004	0:018	0:002	0:001	0:003	0:012	0:004	0:000
	(0:015)	(0:016)	(0:016)	(0:017)	(0:013)	(0:011)	(0:012)	(0:010)	(0:013)
Vaccine + Herd 60%	0:018	0:022	0:024	0:017	0:027	0:017	0:000	0:001	0:003
	(0:019)	(0:019)	(0:019)	(0:022)	(0:018)	(0:015)	(0:014)	(0:013)	(0:017)
Vaccine + Herd 70%	0:040	0:022	0:001	0:036	0:005	0:016	0:009	0:004	0:020
	(0:020)	(0:020)	(0:020)	(0:022)	(0:017)	(0:015)	(0:015)	(0:013)	(0:016)
Vaccine + Herd 80%	0:023	0:001	0:010	0:023	0:019	0:014	0:006	0:021	0:026
	(0:019)	(0:020)	(0:019)	(0:022)	(0:017)	(0:015)	(0:015)	(0:014)	(0:018)
Vaccine + Herd 60% + Current	0:034	0:004	0:014	0:027	0:028	0:012	0:003	0:003	0:005
	(0:020)	(0:020)	(0:020)	(0:022)	(0:018)	(0:014)	(0:015)	(0:012)	(0:017)
Vaccine + Herd 70% + Current	0:035	0:007	0:001	0:006	0:003	0:006	0:030	0:006	0:017
	(0:020)	(0:020)	(0:020)	(0:022)	(0:017)	(0:014)	(0:013)	(0:012)	(0:017)
Vaccine + Herd 80% + Current	0:005	0:019	0:006	0:037	0:016	0:003	0:004	0:005	0:036
	(0:019)	(0:020)	(0:020)	(0:020)	(0:017)	(0:014)	(0:015)	(0:012)	(0:015)
Outcome range	$f0,1g$	$f0,1g$	$f0,1g$	$f0,1g$	$f0,1g$	$f0,1g$	$f0,1g$	$f0,1g$	$f0,1g$
Control outcome mean	0.17	0.19	0.19	0.26	0.12	0.08	0.09	0.06	0.12
Control outcome std. dev.	0.38	0.39	0.39	0.44	0.32	0.27	0.28	0.25	0.32
Observations	5,619	5,619	5,619	5,619	5,619	5,619	5,619	5,619	5,619
R^2	0:103	0:081	0:069	0:151	0:057	0:047	0:095	0:070	0:062

Supplementary Table 14: **Effect of different types of vaccine information on reasons for becoming less hesitant, among treated respondents.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space), weight observations by the inverse probability of treatment assignment, and are estimated using OLS. Because control respondents did not answer this question, the baseline category is the Vaccine only information treatment. Robust standard errors are in parentheses. * denotes $p < 0:1$, ** denotes $p < 0:05$, *** denotes $p < 0:01$ from two-sided t tests.

specifications described in the Methods section, Supplementary Table 15 shows that the treatments produced similar effects on different types of hesitant respondent. The only systematic difference is that basic vaccine information is slightly more effective at persuading women to vaccinate than men.

SI.9 Heterogeneity in the effect of herd immunity information

We next examine the effect of herd immunity treatments that induced respondents to update their beliefs to different degrees and in different directions, relative to their prior beliefs. Using the specification described in the Methods section, column (1) first seeks to validate whether the herd immunity information altered respondents' posterior beliefs about the level of vaccination required to achieve herd immunity. Indeed, respondents whose prior beliefs were below (above) the expert opinion that they were exposed to updated their posterior beliefs upwards (downwards). Columns (2)-(5) then examine the effect of such updating on vaccine willingness, finding little evidence to suggest that respondents that updated their posterior beliefs in different ways adopted different stances toward vaccination. This finding is robust to considering herd immunity treatments that induced respondents to update positively or negatively (panel A) or more subtle forms degrees of updating relative to a control group that received information within 5 percentage points either side of their prior belief (panel B). The results ultimately suggest that learning about herd immunity rates on their own did not play a key role in explaining vaccine willingness.

SI.10 Heterogeneity in the effect of current willingness information

While providing information about the current willingness of the population to get vaccinated does not affect vaccine willingness on average, this null finding may mask variation in responses that

		Outcome variable:			
		Vaccine willingness scale (1)	Willing to take a vaccine (2)	Months would wait to get vaccinated (reversed) (3)	Encourage others to get vaccinated (4)
Any vaccine information		0.343	0.136	0.109	0.002
		(0.253)	(0.109)	(0.645)	(0.120)
Any vaccine information	Woman	0.028	0.039	0.239	0.014
		(0.050)	(0.021)	(0.120)	(0.025)
Any vaccine information	Aged 25-34	0.088	0.010	0.136	0.021
		(0.074)	(0.032)	(0.169)	(0.038)
Any vaccine information	Aged 35-44	0.078	0.007	0.062	0.056
		(0.076)	(0.033)	(0.184)	(0.041)
Any vaccine information	Aged 45-54	0.039	0.032	0.142	0.022
		(0.083)	(0.034)	(0.189)	(0.040)
Any vaccine information	Aged 55-64	0.057	0.029	0.590	0.029
		(0.094)	(0.039)	(0.254)	(0.044)
Any vaccine information	Aged 65+	0.097	0.002	0.217	0.015
		(0.092)	(0.039)	(0.201)	(0.044)
Any vaccine information	Middle SES	0.120	0.035	0.133	0.010
		(0.097)	(0.037)	(0.213)	(0.044)
Any vaccine information	High SES	0.083	0.034	0.255	0.016
		(0.091)	(0.034)	(0.206)	(0.042)
Any vaccine information	Would vote for President	0.081	0.008	0.010	0.004
		(0.065)	(0.025)	(0.141)	(0.028)
Any vaccine information	Primary education	0.053	0.061	0.192	0.133
		(0.242)	(0.105)	(0.597)	(0.112)
Any vaccine information	Secondary education	0.230	0.111	0.186	0.041
		(0.222)	(0.098)	(0.580)	(0.104)
Any vaccine information	University	0.266	0.121	0.169	0.060
		(0.225)	(0.099)	(0.586)	(0.105)
Any vaccine information	Other higher education	0.197	0.107	0.131	0.043
		(0.229)	(0.100)	(0.591)	(0.106)
Outcome range		[1,5]	$f0,1g$	[0,12]	$f0,1g$
Control outcome mean		3.170	0.400	5.780	0.540
Control outcome std. dev		1.180	0.490	4.380	0.500
Observations		6,947	6,947	6,872	6,655
R^2		0.487	0.494	0.767	0.361

Supplementary Table 15: **Effect of any vaccine information on vaccine willingness, by pre-treatment covariate.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space), weight observations by the inverse probability of treatment assignment, and are estimated using OLS. Lower-order interaction terms are omitted to save space; the omitted categories are aged 18-24, would not vote for the President, and university education. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$ from two-sided t tests.

	Outcome variable:				
	Posterior belief about rate required for herd immunity	Vaccine willingness scale	Willing to take a vaccine	Months would wait to get vaccinated (reversed)	Encourage others to get vaccinated
	(1)	(2)	(3)	(4)	(5)
Panel A: Prior beliefs above/below reported expert herd rate					
Prior belief below reported herd rate	3.624	0.060	0.012	0.007	0.028
	(1.151)	(0.074)	(0.032)	(0.213)	(0.039)
Outcome range	[0-100]	[1-5]	{0,1}	[0,12]	{0,1}
Control outcome mean	84.02	3.57	0.55	7.22	0.69
Control outcome std. dev.	14.89	1.08	0.50	4.06	0.46
Observations	2,801	2,955	2,955	2,919	2,821
R^2	0.637	0.496	0.476	0.729	0.415
Panel B: Prior beliefs relative to reported expert herd rate					
Prior belief 5-15pp below reported herd rate	4.282	0.020	0.051	0.220	0.012
	(1.881)	(0.115)	(0.046)	(0.295)	(0.059)
Prior belief 15pp below reported herd rate	6.933	0.036	0.012	0.078	0.028
	(2.393)	(0.137)	(0.055)	(0.387)	(0.070)
Prior belief 5-15pp above reported herd rate	1.192	0.063	0.005	0.256	0.011
	(1.044)	(0.069)	(0.031)	(0.184)	(0.037)
Prior belief 15pp above reported herd rate	3.871	0.049	0.045	0.038	0.071
	(1.289)	(0.082)	(0.039)	(0.230)	(0.043)
Outcome range	[0,100]	[1,5]	{0,1}	[0,12]	{0,1}
Control outcome mean	74.46	3.36	0.44	6.29	0.56
Control outcome std. dev.	12.66	1.10	0.50	4.28	0.50
Observations	2,801	2,955	2,955	2,919	2,821
R^2	0.638	0.496	0.477	0.729	0.416

Supplementary Table 16: **Effect of different types of different expert opinion herd immunity opinion on vaccine willingness, by how the information relates to individual prior beliefs.** All specifications include country block fixed effects, prior belief level fixed effects, and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space) and are estimated using OLS. The sample is restricted to respondents that received a treatment that reported an expert herd immunity rate. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$ from two-sided t tests.

depends on the direction in which the information encouraged respondents to update their posterior beliefs about communal uptake rates. Indeed, the free riding logic suggests that individuals that come to believe that more (less) people will get vaccinated than they previously expected, will become less (more) willing to vaccinate themselves. In contrast, if individuals regard the intentions of others as informative about their own costs and benefits or seek to coordinate their behavior with that of others, then we should expect to observe the reverse relationship. Using the specification described in the Methods section, Supplementary Table 17 detects no evidence to support either logic: respondents that were informed of a current willing that exceed their prior belief became no more or less willing to get vaccinated. As the main paper notes, this suggests that simple forms of free riding, social learning, or coordination are unlikely to be important drivers vaccine willingness.

SI.11 Pre-treatment vaccine hesitancy and prior beliefs

As shown in the main paper, beliefs about the vaccination rates required to achieve herd immunity and the current level of willingness in the population appear to coordinate individuals in a more subtle way: respondents became more willing to get vaccinated when they learned that the population was on track to achieve herd immunity. While the results in the main paper demonstrate this experimentally, we conduct a further analysis based on respondents' prior beliefs to assess this logic correlationally before treatments were delivered. To do so, we examine the interaction between the two prior beliefs using the following OLS regression within our full sample (not just

	Outcome variable:				
	Posterior belief about rate municipal willingness (1)	Vaccine willingness scale (2)	Willing to take a vaccine (3)	Months would wait to get vaccinated (reversed) (4)	Encourage others to get vaccinated (5)
Panel A: Prior beliefs above/below current willingness					
Current	1.491	0.043	0.024	0.253	0.026
	(0.623)	(0.042)	(0.017)	(0.108)	(0.017)
Prior below current willingness	25.857	0.180	0.067	0.291	0.123
	(0.551)	(0.027)	(0.011)	(0.071)	(0.013)
Current × Prior below current willingness	3.296	0.021	0.005	0.091	0.003
	(1.067)	(0.054)	(0.023)	(0.145)	(0.024)
Outcome range	[0,100]	[1,5]	{0,1}	[0,12]	{0,1}
Control outcome mean	61.81	3.17	0.40	5.78	0.54
Control outcome std. dev.	24.37	1.18	0.49	4.38	0.50
Observations	6,747	6,951	6,951	6,876	6,659
R^2	0.402	0.438	0.444	0.719	0.354
Panel B: Prior beliefs relative to current willingness					
Current	0.184	0.029	0.047	0.078	0.065
	(1.002)	(0.064)	(0.030)	(0.150)	(0.031)
Prior 5-15pp below current willingness	5.917	0.079	0.041	0.190	0.044
	(0.748)	(0.044)	(0.019)	(0.106)	(0.021)
Prior 15pp below current willingness	14.594	0.059	0.040	0.100	0.075
	(0.788)	(0.047)	(0.019)	(0.115)	(0.021)
Prior 5-15pp above current willingness	8.501	0.060	0.009	0.050	0.041
	(0.826)	(0.043)	(0.019)	(0.114)	(0.022)
Prior 15pp above current willingness	26.520	0.201	0.060	0.304	0.110
	(0.782)	(0.038)	(0.017)	(0.099)	(0.020)
Current × Prior 5-15pp below current willingness	0.687	0.063	0.046	0.263	0.056
	(1.347)	(0.088)	(0.040)	(0.216)	(0.041)
Current × Prior 15pp below current willingness	1.124	0.112	0.002	0.140	0.028
	(1.383)	(0.099)	(0.042)	(0.245)	(0.041)
Current × Prior 5-15pp above current willingness	2.681	0.113	0.025	0.148	0.039
	(1.590)	(0.087)	(0.042)	(0.242)	(0.046)
Current × Prior 15pp above current willingness	2.622	0.013	0.036	0.083	0.050
	(1.534)	(0.077)	(0.035)	(0.198)	(0.038)
Outcome range	[0,100]	[1,5]	{0,1}	[0,12]	{0,1}
Control outcome mean	61.810	3.170	0.400	5.780	0.540
Control outcome std. dev.	24.370	1.180	0.490	4.380	0.500
Observations	6,747	6,951	6,951	6,876	6,659
R^2	0.510	0.442	0.447	0.720	0.360

Supplementary Table 17: **Effect of vaccine information on vaccine willingness, by how current willingness relates to individual prior beliefs.** All specifications include country × block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space), weight observations by the inverse probability of treatment assignment, and are estimated using OLS. All treatments and associated interactions are included in panel B, but omitted to save space. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$ from two-sided t tests.

	Outcome variable:		
	Vaccine willingness scale (1)	Willing to take a vaccine (2)	Months would wait to get vaccinated (reversed) (3)
Constant	1.920537	0.006324	0.379705
	(0.067262)	(0.016529)	(0.229238)
Pre-treatment uptake rate	0.003240	0.000581	0.012471
	(0.001468)	(0.000414)	(0.004998)
Pre-treatment herd immunity	0.010004	0.001264	0.037189
	(0.000938)	(0.000289)	(0.003279)
Pre-treatment uptake herd immunity	0.000032	0.000042	0.000288
	(0.000018)	(0.000006)	(0.000061)
Outcome range	[1,5]	$f0,1g$	[0,12]
Observations	7,521	7,521	7,521
R^2	0.105	0.099	0.177

Supplementary Table 18: **Correlation between prior beliefs and prior vaccine willingness.** All specifications are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$ from two-sided t tests.

among hesitant respondents):

$$Y_{ic} = \ _0 + \ _1 Herd\ prior_{ic} + \ _2 Willing\ prior_{ic} + \ _3 (Herd\ prior_{ic} \quad Willing\ prior_{ic}) + "_{ic}: \quad (1)$$

The results, which are reported in Supplementary Table 18 for the three outcomes measured before treatment, find a statistically significant positive interaction effect in each case. As with the experimental evidence, this suggests that individuals who believed—before treatment—that a given level of mass vaccination is required to achieve herd immunity were more willing to get vaccinated if they believe that many others are also likely to get vaccinated.

SI.12 Heterogeneity in the effect of motivational messages

To understand which types of individuals may be most responsive to different types of motivational message, we again examine heterogeneity in treatment effects across demographic subgroups about which policymakers could conceivably obtain data at scale—and could thus microtarget campaign messaging towards. Specifically, we consider a respondent's sex, age category, highest level of completed education, socioeconomic class, and intention to vote for the President. Estimating the specifications described in the Methods section, Supplementary Table 19 shows that the treatments produced similar effects on different types of hesitant respondent. While there is some evidence to suggest that older respondents were less responsive to the social approval message, the effects are largely similar across types of respondent.

SI.13 Interaction between informational and motivational messages

While both basic vaccine information and social approval messages proved effective at increasing vaccine willingness among hesitant respondents, it may be important from a policy perspective to understand whether these messages serve as substitutes or complements. To do so, we examine the interaction between the two treatment conditions, which were assigned independently. The results in Supplementary Table 20 find no systematic evidence of a positive or negative interaction between any of the motivational messages and receiving basic vaccine information. This suggests that the two types of messaging campaigns may be largely additive.

SI.14 Demand for further information

The main paper focused on vaccine willingness in terms of intentions to act get vaccinated and encourage others to get vaccinated. To examine a less direct behavioral outcome, we also report

	Outcome variable:			
	Vaccine willingness scale (1)	Willing to take a vaccine (2)	Months would wait to get vaccinated (reversed) (3)	Encourage others to get vaccinated (4)
Altruism	0.307	0.008	0.138	0.136
	(0.264)	(0.112)	(0.797)	(0.121)
Economic recovery	0.179	0.073	0.703	0.343
	(0.259)	(0.113)	(0.639)	(0.128)
Social Approval	0.067	0.219	1.645	0.008
	(0.256)	(0.108)	(0.834)	(0.131)
Altruism Woman	0.003	0.010	0.054	0.012
	(0.062)	(0.026)	(0.166)	(0.029)
Economic recovery Woman	0.075	0.005	0.035	0.010
	(0.062)	(0.026)	(0.165)	(0.029)
Social status Woman	0.057	0.014	0.047	0.004
	(0.062)	(0.026)	(0.174)	(0.030)
Altruism Aged 25-34	0.015	0.037	0.041	0.024
	(0.095)	(0.041)	(0.244)	(0.046)
Economic recovery Aged 25-34	0.061	0.038	0.232	0.086
	(0.095)	(0.041)	(0.237)	(0.046)
Social status Aged 25-34	0.039	0.038	0.525	0.012
	(0.093)	(0.041)	(0.249)	(0.047)
Altruism Aged 35-44	0.030	0.028	0.009	0.005
	(0.093)	(0.041)	(0.273)	(0.048)
Economic recovery Aged 35-44	0.064	0.056	0.265	0.046
	(0.095)	(0.041)	(0.265)	(0.048)
Social status Aged 35-44	0.095	0.052	0.358	0.024
	(0.096)	(0.042)	(0.271)	(0.048)
Altruism Aged 45-54	0.142	0.047	0.047	0.041
	(0.102)	(0.043)	(0.284)	(0.049)
Economic recovery Aged 45-54	0.053	0.039	0.346	0.028
	(0.103)	(0.042)	(0.282)	(0.048)
Social status Aged 45-54	0.038	0.035	0.020	0.003
	(0.103)	(0.042)	(0.295)	(0.049)
Altruism Aged 55-64	0.127	0.016	0.180	0.027
	(0.114)	(0.047)	(0.294)	(0.051)
Economic recovery Aged 55-64	0.092	0.019	0.087	0.025
	(0.124)	(0.052)	(0.303)	(0.053)
Social status Aged 55-64	0.082	0.019	0.374	0.054
	(0.116)	(0.049)	(0.309)	(0.053)
Altruism Aged 65+	0.153	0.053	0.046	0.024
	(0.118)	(0.050)	(0.294)	(0.053)
Economic recovery Aged 65+	0.079	0.061	0.575	0.030
	(0.112)	(0.049)	(0.310)	(0.054)
Social status Aged 65+	0.106	0.117	0.232	0.028
	(0.114)	(0.048)	(0.303)	(0.054)
Altruism Middle SES	0.105	0.010	0.413	0.012
	(0.124)	(0.049)	(0.293)	(0.052)
Economic recovery Middle SES	0.101	0.033	0.255	0.035
	(0.128)	(0.049)	(0.286)	(0.052)
Social status Middle SES	0.108	0.003	0.076	0.087
	(0.123)	(0.047)	(0.320)	(0.052)
Altruism High SES	0.037	0.016	0.304	0.033
	(0.119)	(0.046)	(0.271)	(0.049)
Economic recovery High SES	0.107	0.035	0.191	0.038
	(0.122)	(0.046)	(0.264)	(0.049)
Social status High SES	0.118	0.014	0.080	0.104
	(0.119)	(0.045)	(0.304)	(0.049)
Altruism Would vote for President	0.024	0.029	0.008	0.081
	(0.082)	(0.033)	(0.214)	(0.035)
Economic recovery Would vote for President	0.102	0.030	0.445	0.026
	(0.085)	(0.034)	(0.222)	(0.036)
Social status Would vote for President	0.014	0.022	0.225	0.047
	(0.086)	(0.034)	(0.220)	(0.036)
Altruism Primary education	0.078	0.011	0.493	0.138
	(0.235)	(0.104)	(0.727)	(0.113)
Economic recovery Primary education	0.024	0.096	0.790	0.352
	(0.224)	(0.101)	(0.583)	(0.115)
Social status Primary education	0.044	0.081	1.412	0.023
	(0.224)	(0.099)	(0.755)	(0.121)
Altruism Secondary education	0.273	0.041	0.200	0.168
	(0.210)	(0.093)	(0.684)	(0.099)
Economic recovery Secondary education	0.023	0.066	0.793	0.328
	(0.199)	(0.091)	(0.485)	(0.104)
Social status Secondary education	0.170	0.144	1.716	0.042
	(0.198)	(0.088)	(0.706)	(0.110)
Altruism University education	0.295	0.059	0.113	0.193
	(0.212)	(0.095)	(0.685)	(0.100)
Economic recovery University education	0.041	0.107	0.702	0.273
	(0.203)	(0.092)	(0.487)	(0.105)
Social status University education	0.086	0.104	1.695	0.011
	(0.202)	(0.089)	(0.712)	(0.111)
Altruism Other higher education	0.219	0.030	0.367	0.140
	(0.215)	(0.096)	(0.697)	(0.102)
Economic recovery Other higher education	0.020	0.066	0.670	0.330
	(0.207)	(0.094)	(0.511)	(0.107)
Social status Other higher education	0.208	0.125	1.658	0.035
	(0.207)	(0.092)	(0.727)	(0.113)
Outcome range	[1,5]	$f0,1g$	[0,12]	$f0,1g$
Control outcome mean	3.240	0.420	6.070	0.550
Control outcome std. dev	1.170	0.490	4.410	0.500
Observations	6,947	6,947	6,872	6,655
R^2	0.447	0.460	0.730	0.346

Supplementary Table 19: **Effect of any motivational messages on vaccine willingness, by pre-treatment covariate.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space) and are estimated using OLS. Lower-order interaction terms are omitted to save space. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$ from two-sided t tests.

	Outcome variable:			
	Vaccine willingness scale	Willing to take a vaccine	Months would wait to get vaccinated (reversed)	Encourage others to get vaccinated
	(1)	(2)	(3)	(4)
Altruism	0.023	0.000	0.149	0.030
	(0.057)	(0.023)	(0.123)	(0.030)
Economic recovery	0.019	0.006	0.108	0.062
	(0.055)	(0.023)	(0.119)	(0.029)
Social status	0.142	0.056	0.394	0.075
	(0.057)	(0.025)	(0.150)	(0.031)
Any vaccine information	0.143	0.038	0.511	0.061
	(0.045)	(0.019)	(0.115)	(0.025)
Altruism Any vaccine information	0.001	0.019	0.091	0.016
	(0.068)	(0.028)	(0.157)	(0.035)
Economic recovery Any vaccine information	0.045	0.021	0.147	0.040
	(0.066)	(0.028)	(0.154)	(0.034)
Social status Any vaccine information	0.048	0.013	0.171	0.040
	(0.068)	(0.029)	(0.181)	(0.036)
Outcome range	[1,5]	$f0,1g$	[0,12]	$f0,1g$
Control outcome mean	3.16	0.40	5.71	0.51
Control outcome std. dev.	1.15	0.49	4.28	0.50
Observations	6,951	6,951	6,876	6,659
R^2	0.485	0.493	0.767	0.358

Supplementary Table 20: **Effect of any vaccine information on vaccine willingness, by motivational message.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space), weight observations by the inverse probability of treatment assignment, and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$ from two-sided t tests.

the effects of the treatments on interest in receiving additional information COVID-19 vaccines from the Pan American Health Organization. Supplementary Tables 21-23 report the effects of the information and motivational treatments on seeking such information. In each case, we find little evidence to suggest that the treatments moved interest in receiving further information. It should be noted that this opportunity came after a 25 minute survey that already provided treated respondents with considerable vaccine information already. The null effects could then be explained by treated respondents already feeling sufficiently informed about COVID-19 vaccines that they did not need to expend additional effort to acquire further information.

SI.15 Population-weighted treatment effects

In estimating treatment effects, we did not apply population weights for each respondent to maximize the efficiency of our estimation of average treatment effects within a sample that was already nationally representative along several key dimensions. To more thoroughly examine how the results extend to the national hesitant population, we further weight our estimates in two ways (taking the product of inverse probability of treatment assignment weights and population weights, wherever relevant). First, within each country, we weight each respondent according to the relative frequency in the survey of the respondent's cell—defined by their age category, education, region, and gender—relative to the corresponding cell in the most recent available census. In other words, we reweight observations according to the joint distribution over these four variables in the population. Second, we instead apply rake weights to reweight observations according to the product of in-survey marginal distribution, relative to the national distribution, across the following variables: age category, education, region, gender, and (using data provided by Netquest) socioeconomic

	Outcome variable: Requested more information (1)	Visited PAHO website (2)
Panel A: All countries pooled		
Any vaccine information	0:020	0:001
	(0:015)	(0:012)
Outcome range	$f0,1g$	$f0,1g$
Control outcome mean	0.57	0.22
Control outcome std. dev.	0.50	0.42
Observations	6,082	6,082
R^2	0:107	0:097
Panel B: Argentina		
Any vaccine information	0:008	0:041
	(0:037)	(0:028)
Outcome range	$f0,1g$	$f0,1g$
Control outcome mean	0.48	0.19
Control outcome std. dev.	0.50	0.40
Observations	1,019	1,019
R^2	0:088	0:161
Panel C: Brazil		
Any vaccine information	0:006	0:012
	(0:038)	(0:029)
Outcome range	$f0,1g$	$f0,1g$
Control outcome mean	0.49	0.19
Control outcome std. dev.	0.50	0.39
Observations	1,007	1,007
R^2	0:054	0:060
Panel D: Chile		
Any vaccine information	0:020	0:046
	(0:036)	(0:030)
Outcome range	$f0,1g$	$f0,1g$
Control outcome mean	0.52	0.18
Control outcome std. dev.	0.50	0.38
Observations	1,006	1,006
R^2	0:110	0:088
Panel E: Colombia		
Any vaccine information	0:033	0:029
	(0:035)	(0:032)
Outcome range	$f0,1g$	$f0,1g$
Control outcome mean	0.62	0.25
Control outcome std. dev.	0.48	0.44
Observations	1,011	1,011
R^2	0:101	0:080
Panel F: México		
Any vaccine information	0:039	0:050
	(0:036)	(0:031)
Outcome range	$f0,1g$	$f0,1g$
Control outcome mean	0.62	0.26
Control outcome std. dev.	0.49	0.44
Observations	1,005	1,005
R^2	0:085	0:100
Panel G: Perú		
Any vaccine information	0:031	0:016
	(0:033)	(0:032)
Outcome range	$f0,1g$	$f0,1g$
Control outcome mean	0.68	0.27
Control outcome std. dev.	0.46	0.45
Observations	1,034	1,034
R^2	0:114	0:093

Supplementary Table 21: **Effect of any vaccine information on demand for further vaccine information.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space), weight observations by the inverse probability of treatment assignment, and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0:1$, ** denotes $p < 0:05$, *** denotes $p < 0:01$ from two-sided t tests.

	Outcome variable:	
	Requested more information	Visited PAHO website
	(1)	(2)
Vaccine	0.009	0.012
	(0.019)	(0.017)
Vaccine + Biden	0.027	0.014
	(0.022)	(0.018)
Vaccine + Herd 60%	0.021	0.001
	(0.027)	(0.023)
Vaccine + Herd 70%	0.003	0.020
	(0.026)	(0.023)
Vaccine + herd 80%	0.024	0.018
	(0.027)	(0.022)
Vaccine + Herd 60% + Current	0.034	0.002
	(0.027)	(0.023)
Vaccine + Herd 70% + Current	0.025	0.012
	(0.027)	(0.022)
Vaccine + Herd 80% + Current	0.037	0.005
	(0.027)	(0.022)
Outcome range	$f0,1g$	$f0,1g$
Control outcome mean	0.57	0.22
Control outcome std. dev.	0.50	0.42
Observations	6,082	6,082
R^2	0.101	0.098

Supplementary Table 22: **Effect of different types of vaccine information treatment on demand for further vaccine information.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space), weight observations by the inverse probability of treatment assignment, and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$ from two-sided t tests.

	Outcome variable:	
	Requested more information	Visited PAHO website
	(1)	(2)
Panel A: All countries pooled		
Altruism	0:009	0:027
	(0:017)	(0:015)
Economic recovery	0:014	0:028
	(0:018)	(0:015)
Social approval	0:014	0:006
	(0:018)	(0:015)
Outcome range	$f0,1g$	$f0,1g$
Control outcome mean	0.56	0.24
Control outcome std. dev.	0.50	0.43
Observations	6,082	6,082
R^2	0:097	0:090
Panel B: Argentina		
Altruism	0:014	0:043
	(0:043)	(0:036)
Economic recovery	0:000	0:023
	(0:045)	(0:037)
Social approval	0:021	0:026
	(0:043)	(0:036)
Outcome range	$f0,1g$	$f0,1g$
Control outcome mean	0.49	0.26
Control outcome std. dev.	0.50	0.44
Observations	1,019	1,019
R^2	0:085	0:135
Panel C: Brazil		
Altruism	0:089	0:051
	(0:044)	(0:033)
Economic recovery	0:057	0:011
	(0:044)	(0:034)
Social approval	0:017	0:060
	(0:044)	(0:037)
Outcome range	$f0,1g$	$f0,1g$
Control outcome mean	0.51	0.19
Control outcome std. dev.	0.50	0.39
Observations	1,007	1,007
R^2	0:063	0:074
Panel D: Chile		
Altruism	0:009	0:012
	(0:044)	(0:037)
Economic recovery	0:018	0:030
	(0:044)	(0:036)
Social approval	0:043	0:010
	(0:044)	(0:037)
Outcome range	$f0,1g$	$f0,1g$
Control outcome mean	0.51	0.23
Control outcome std. dev.	0.50	0.42
Observations	1,006	1,006
R^2	0:094	0:097
Panel E: Colombia		
Altruism	0:039	0:010
	(0:043)	(0:038)
Economic recovery	0:081	0:023
	(0:043)	(0:037)
Social approval	0:087	0:021
	(0:043)	(0:037)
Outcome range	$f0,1g$	$f0,1g$
Control outcome mean	0.54	0.25
Control outcome std. dev.	0.50	0.43
Observations	1,011	1,011
R^2	0:087	0:068
Panel F: México		
Altruism	0:051	0:000
	(0:043)	(0:037)
Economic recovery	0:033	0:036
	(0:044)	(0:036)
Social approval	0:014	0:006
	(0:043)	(0:036)
Outcome range	$f0,1g$	$f0,1g$
Control outcome mean	0.58	0.22
Control outcome std. dev.	0.49	0.42
Observations	1,005	1,005
R^2	0:086	0:084
Panel G: Perú		
Altruism	0:061	0:071
	(0:040)	(0:038)
Economic recovery	0:058	0:043
	(0:040)	(0:038)
Social approval	0:068	0:050
	(0:040)	(0:039)
Outcome range	$f0,1g$	$f0,1g$
Control outcome mean	0.71	0.30
Control outcome std. dev.	0.46	0.46
Observations	1,034	1,034
R^2	0:105	0:092

Supplementary Table 23: **Effect of different types of motivational message on demand for further vaccine information.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space) and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0:1$, ** denotes $p < 0:05$, *** denotes $p < 0:01$ from two-sided t tests.

class. In each case, a small number of observations are dropped because weights could not be defined.

The results in Supplementary Tables 24-31 show that similar results apply. If anything, the positive effects of basic vaccine information on vaccine willingness and encouraging others are larger in magnitude once the population distribution is taken into account, although the effect on expected wait until vaccination once eligible is a little lower. The effects of the social approval treatment are also a little larger in magnitude. Unsurprisingly, the standard errors become larger once each type of weight is applied, although the core findings generally remain statistically significant for each type of population weight.

	Outcome variable:			
	Vaccine willingness scale (1)	Willing to take a vaccine (2)	Months would wait to get vaccinated (reversed) (3)	Encourage others to get vaccinated (4)
Panel A: All countries pooled				
Any vaccine information	0:170	0:067	0:348	0:055
	(0:037)	(0:015)	(0:087)	(0:018)
Outcome range	[1,5]	$f0,1g$	[1,12]	$f0,1g$
Control outcome mean	3:14	0:38	5:84	0:50
Control outcome std. dev.	1:20	0:49	4:35	0:50
Observations	6,922	6,922	6,847	6,631
R^2	0:506	0:505	0:773	0:389
Panel B: Argentina				
Any vaccine information	0:268	0:075	0:473	0:083
	(0:094)	(0:042)	(0:216)	(0:046)
Outcome range	[1,5]	$f0,1g$	[1,12]	$f0,1g$
Control outcome mean	2:90	0:32	4:56	0:37
Control outcome std. dev.	1:12	0:47	4:42	0:48
Observations	1,156	1,156	1,146	1,105
R^2	0:489	0:511	0:824	0:424
Panel C: Brazil				
Any vaccine information	0:315	0:126	0:427	0:035
	(0:077)	(0:033)	(0:180)	(0:038)
Outcome range	[1,5]	$f0,1g$	[1,12]	$f0,1g$
Control outcome mean	3:15	0:35	5:87	0:43
Control outcome std. dev.	1:19	0:48	4:31	0:50
Observations	1,212	1,212	1,186	1,133
R^2	0:593	0:531	0:764	0:439
Panel D: Chile				
Any vaccine information	0:153	0:070	0:397	0:086
	(0:095)	(0:036)	(0:218)	(0:040)
Outcome range	[1,5]	$f0,1g$	[1,12]	$f0,1g$
Control outcome mean	2:94	0:32	4:97	0:43
Control outcome std. dev.	1:28	0:47	4:26	0:49
Observations	1,109	1,109	1,101	1,076
R^2	0:528	0:537	0:791	0:425
Panel E: Colombia				
Any vaccine information	0:226	0:094	0:441	0:077
	(0:082)	(0:032)	(0:143)	(0:040)
Outcome range	[1,5]	$f0,1g$	[1,12]	$f0,1g$
Control outcome mean	3:13	0:37	6:21	0:55
Control outcome std. dev.	1:24	0:48	4:28	0:50
Observations	1,130	1,130	1,119	1,084
R^2	0:506	0:526	0:834	0:408
Panel F: México				
Any vaccine information	0:001	0:003	0:160	0:002
	(0:099)	(0:043)	(0:224)	(0:050)
Outcome range	[1,5]	$f0,1g$	[1,12]	$f0,1g$
Control outcome mean	3:60	0:55	7:32	0:69
Control outcome std. dev.	1:20	0:50	4:03	0:46
Observations	1,098	1,098	1,094	1,071
R^2	0:453	0:470	0:692	0:284
Panel G: Perú				
Any vaccine information	0:062	0:031	0:195	0:052
	(0:085)	(0:036)	(0:263)	(0:044)
Outcome range	[1,5]	$f0,1g$	[1,12]	$f0,1g$
Control outcome mean	3:14	0:40	6:27	0:55
Control outcome std. dev.	1:06	0:49	4:22	0:50
Observations	1,217	1,217	1,201	1,162
R^2	0:422	0:440	0:686	0:299

Supplementary Table 24: **Effect of any vaccine information on vaccine willingness, using population cell weights.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space), weight observations by the inverse probability of treatment assignment and population weights, and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0:1$, ** denotes $p < 0:05$, *** denotes $p < 0:01$ from two-sided t tests.

	Outcome variable:			
	Vaccine willingness scale (1)	Willing to take a vaccine (2)	Months would wait to get vaccinated (reversed) (3)	Encourage others to get vaccinated (4)
Vaccine	0.122	0.053	0.276	0.060
	(0.054)	(0.022)	(0.119)	(0.025)
Vaccine + Biden	0.205	0.090	0.382	0.080
	(0.065)	(0.029)	(0.168)	(0.031)
Vaccine + Herd 60%	0.117	0.048	0.211	0.028
	(0.067)	(0.029)	(0.168)	(0.035)
Vaccine + Herd 70%	0.202	0.077	0.561	0.064
	(0.072)	(0.029)	(0.162)	(0.032)
Vaccine + Herd 80%	0.161	0.075	0.313	0.037
	(0.073)	(0.033)	(0.188)	(0.034)
Vaccine + Herd 60% + Current	0.229	0.100	0.441	0.128
	(0.067)	(0.032)	(0.218)	(0.031)
Vaccine + Herd 70% + Current	0.203	0.081	0.354	0.092
	(0.073)	(0.031)	(0.174)	(0.035)
Vaccine + Herd 80% + Current	0.150	0.044	0.307	0.019
	(0.081)	(0.031)	(0.180)	(0.036)
Outcome range	[1,5]	$f0,1g$	[1,12]	$f0,1g$
Control outcome mean	3.14	0.38	5.84	0.50
Control outcome std. dev.	1.20	0.49	4.35	0.50
Observations	6,922	6,922	6,847	6,631
R^2	0.452	0.448	0.722	0.358

Supplementary Table 25: **Effect of different types of vaccine information on vaccine willingness, using population cell weights.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space), weight observations by the inverse probability of treatment assignment and population weights, and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$ from two-sided t tests.

	Outcome variable:			
	Vaccine willingness scale	Willing to take a vaccine	Months would wait to get vaccinated (reversed)	Encourage others to get vaccinated
	(1)	(2)	(3)	(4)
Current	0.083	0.075	0.256	0.110
	(0.082)	(0.040)	(0.253)	(0.043)
Current rate below herd opinion	0.001	0.023	0.026	0.012
	(0.073)	(0.035)	(0.211)	(0.041)
Current × Current rate below herd opinion	0.060	0.092	0.323	0.118
	(0.106)	(0.050)	(0.300)	(0.056)
Outcome range	[1,5]	{0,1}	[0,12]	{0,1}
Control outcome mean	3.39	0.48	6.16	0.54
Control outcome std. dev.	1.16	0.50	4.35	0.50
Observations	2,943	2,943	2,907	2,809
R^2	0.503	0.476	0.730	0.407

Supplementary Table 26: **The effect of being informed that the current rate of vaccination willingness in the population is above/below the rate required for herd immunity, using population cell weights.** All specifications include country × block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space), weight observations by the inverse probability of treatment assignment and population weights, and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$ from two-sided t tests.

	Outcome variable:			
	Vaccine willingness scale (1)	Willing to take a vaccine (2)	Months would wait to get vaccinated (reversed) (3)	Encourage others to get vaccinated (4)
Panel A: All countries pooled				
Altruism	0.002	0.003	0.119	0.007
	(0.050)	(0.021)	(0.120)	(0.024)
Economic recovery	0.051	0.020	0.020	0.026
	(0.045)	(0.020)	(0.116)	(0.022)
Social approval	0.143	0.062	0.339	0.048
	(0.045)	(0.021)	(0.130)	(0.023)
Outcome range	[1,5]	{0,1}	[1,12]	{0,1}
Control outcome mean	3.20	0.41	5.96	0.53
Control outcome std. dev.	1.16	0.49	4.42	0.50
Observations	6,922	6,922	6,847	6,631
R^2	0.453	0.457	0.734	0.349
Panel B: Argentina				
Altruism	0.012	0.011	0.247	0.008
	(0.105)	(0.056)	(0.345)	(0.064)
Economic recovery	0.257	0.117	0.047	0.054
	(0.116)	(0.059)	(0.309)	(0.062)
Social approval	0.189	0.053	0.059	0.030
	(0.104)	(0.056)	(0.282)	(0.065)
Outcome range	[1,5]	{0,1}	[1,12]	{0,1}
Control outcome mean	3.07	0.37	5.45	0.47
Control outcome std. dev.	1.07	0.48	4.37	0.50
Observations	1,156	1,156	1,146	1,105
R^2	0.452	0.451	0.797	0.365
Panel C: Brazil				
Altruism	0.083	0.038	0.564	0.021
	(0.120)	(0.054)	(0.277)	(0.053)
Economic recovery	0.101	0.004	0.921	0.039
	(0.088)	(0.042)	(0.264)	(0.048)
Social approval	0.144	0.068	1.044	0.055
	(0.084)	(0.040)	(0.267)	(0.048)
Outcome range	[1,5]	{0,1}	[1,12]	{0,1}
Control outcome mean	3.30	0.42	5.24	0.45
Control outcome std. dev.	1.22	0.49	4.57	0.50
Observations	1,212	1,212	1,186	1,133
R^2	0.562	0.518	0.717	0.390
Panel D: Chile				
Altruism	0.159	0.080	0.212	0.004
	(0.124)	(0.041)	(0.246)	(0.052)
Economic recovery	0.012	0.041	0.100	0.035
	(0.104)	(0.038)	(0.255)	(0.053)
Social approval	0.187	0.148	0.836	0.079
	(0.113)	(0.048)	(0.342)	(0.051)
Outcome range	[1,5]	{0,1}	[1,12]	{0,1}
Control outcome mean	2.97	0.30	4.81	0.49
Control outcome std. dev.	1.15	0.46	4.37	0.50
Observations	1,109	1,109	1,101	1,076
R^2	0.479	0.490	0.746	0.379
Panel E: Colombia				
Altruism	0.067	0.019	0.562	0.025
	(0.111)	(0.041)	(0.225)	(0.047)
Economic recovery	0.019	0.016	0.080	0.003
	(0.106)	(0.045)	(0.202)	(0.049)
Social approval	0.210	0.052	0.399	0.073
	(0.115)	(0.047)	(0.277)	(0.052)
Outcome range	[1,5]	{0,1}	[1,12]	{0,1}
Control outcome mean	3.18	0.42	6.15	0.55
Control outcome std. dev.	1.25	0.49	4.62	0.50
Observations	1,130	1,130	1,119	1,084
R^2	0.461	0.465	0.780	0.360
Panel F: México				
Altruism	0.032	0.013	0.099	0.011
	(0.123)	(0.061)	(0.254)	(0.070)
Economic recovery	0.125	0.034	0.109	0.047
	(0.120)	(0.054)	(0.356)	(0.058)
Social approval	0.018	0.029	0.123	0.037
	(0.117)	(0.057)	(0.301)	(0.060)
Outcome range	[1,5]	{0,1}	[1,12]	{0,1}
Control outcome mean	3.64	0.59	7.51	0.66
Control outcome std. dev.	1.07	0.49	3.70	0.48
Observations	1,098	1,098	1,094	1,071
R^2	0.373	0.415	0.651	0.275
Panel G: Perú				
Altruism	0.002	0.016	0.961	0.095
	(0.124)	(0.052)	(0.362)	(0.062)
Economic recovery	0.071	0.022	0.910	0.010
	(0.113)	(0.049)	(0.290)	(0.056)
Social approval	0.131	0.071	0.456	0.025
	(0.123)	(0.056)	(0.373)	(0.057)
Outcome range	[1,5]	{0,1}	[1,12]	{0,1}
Control outcome mean	3.08	0.37	6.73	0.59
Control outcome std. dev.	1.10	0.48	4.25	0.49
Observations	1,217	1,217	1,201	1,162
R^2	0.368	0.399	0.685	0.308

Supplementary Table 27: **Effect of different types of motivational message on vaccine willingness, using population cell weights.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space), weight observations by population weights, and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$ from two-sided t tests.

	Outcome variable:			
	Vaccine willingness scale (1)	Willing to take a vaccine (2)	Months would wait to get vaccinated (reversed) (3)	Encourage others to get vaccinated (4)
Panel A: All countries pooled				
Any vaccine information	0:168	0:051	0:347	0:020
	(0:039)	(0:016)	(0:099)	(0:020)
Outcome range	[1,5]	$f0,1g$	[1,12]	$f0,1g$
Control outcome mean	3:17	0:41	6:02	0:54
Control outcome std. dev.	1:19	0:49	4:33	0:50
Observations	6,803	6,803	6,732	6,519
R^2	0:496	0:510	0:768	0:377
Panel B: Argentina				
Any vaccine information	0:253	0:058	0:405	0:089
	(0:103)	(0:039)	(0:197)	(0:041)
Outcome range	[1,5]	$f0,1g$	[1,12]	$f0,1g$
Control outcome mean	2:92	0:35	5:06	0:43
Control outcome std. dev.	1:22	0:48	4:46	0:49
Observations	1,130	1,130	1,120	1,081
R^2	0:473	0:498	0:834	0:440
Panel C: Brazil				
Any vaccine information	0:233	0:092	0:392	0:003
	(0:072)	(0:033)	(0:214)	(0:036)
Outcome range	[1,5]	$f0,1g$	[1,12]	$f0,1g$
Control outcome mean	3:24	0:40	5:93	0:49
Control outcome std. dev.	1:17	0:49	4:39	0:50
Observations	1,195	1,195	1,172	1,119
R^2	0:560	0:515	0:728	0:403
Panel D: Chile				
Any vaccine information	0:134	0:064	0:473	0:051
	(0:084)	(0:035)	(0:201)	(0:041)
Outcome range	[1,5]	$f0,1g$	[1,12]	$f0,1g$
Control outcome mean	2:91	0:31	4:83	0:46
Control outcome std. dev.	1:21	0:46	4:42	0:50
Observations	1,085	1,085	1,077	1,052
R^2	0:500	0:472	0:785	0:337
Panel E: Colombia				
Any vaccine information	0:138	0:060	0:360	0:054
	(0:073)	(0:029)	(0:131)	(0:039)
Outcome range	[1,5]	$f0,1g$	[1,12]	$f0,1g$
Control outcome mean	3:17	0:39	6:19	0:54
Control outcome std. dev.	1:24	0:49	4:23	0:50
Observations	1,109	1,109	1,098	1,063
R^2	0:509	0:543	0:839	0:417
Panel F: México				
Any vaccine information	0:160	0:032	0:183	0:058
	(0:112)	(0:042)	(0:288)	(0:057)
Outcome range	[1,5]	$f0,1g$	[1,12]	$f0,1g$
Control outcome mean	3:51	0:54	7:30	0:70
Control outcome std. dev.	1:15	0:50	3:89	0:46
Observations	1,072	1,072	1,069	1,046
R^2	0:467	0:542	0:715	0:347
Panel G: Perú				
Any vaccine information	0:096	0:017	0:371	0:039
	(0:078)	(0:036)	(0:237)	(0:042)
Outcome range	[1,5]	$f0,1g$	[1,12]	$f0,1g$
Control outcome mean	3:11	0:40	6:08	0:55
Control outcome std. dev.	1:04	0:49	4:27	0:50
Observations	1,212	1,212	1,196	1,158
R^2	0:421	0:432	0:695	0:310

Supplementary Table 28: **Effect of any vaccine information on vaccine willingness, using population rake weights.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space), weight observations by the inverse probability of treatment assignment and population rake weights, and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0:1$, ** denotes $p < 0:05$, *** denotes $p < 0:01$ from two-sided t tests.

	Outcome variable:			
	Vaccine willingness scale (1)	Willing to take a vaccine (2)	Months would wait to get vaccinated (reversed) (3)	Encourage others to get vaccinated (4)
Vaccine	0.113	0.042	0.388	0.051
	(0.058)	(0.023)	(0.143)	(0.025)
Vaccine + Biden	0.179	0.048	0.165	0.008
	(0.063)	(0.026)	(0.179)	(0.035)
Vaccine + Herd 60%	0.121	0.043	0.115	0.012
	(0.070)	(0.037)	(0.173)	(0.040)
Vaccine + Herd 70%	0.177	0.063	0.560	0.042
	(0.070)	(0.033)	(0.208)	(0.034)
Vaccine + Herd 80%	0.182	0.053	0.166	0.028
	(0.068)	(0.029)	(0.157)	(0.037)
Vaccine + Herd 60% + Current	0.184	0.068	0.330	0.083
	(0.065)	(0.030)	(0.208)	(0.032)
Vaccine + Herd 70% + Current	0.175	0.062	0.403	0.057
	(0.070)	(0.031)	(0.174)	(0.036)
Vaccine + Herd 80% + Current	0.182	0.038	0.592	0.004
	(0.079)	(0.029)	(0.221)	(0.034)
Outcome range	[1,5]	$f0,1g$	[1,12]	$f0,1g$
Control outcome mean	3.17	0.41	6.02	0.54
Control outcome std. dev.	1.19	0.49	4.33	0.50
Observations	6,803	6,803	6,732	6,519
R^2	0.455	0.457	0.725	0.357

Supplementary Table 29: **Effect of different types of vaccine information on vaccine willingness, using population rake weights.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space), weight observations by the inverse probability of treatment assignment and population rake weights, and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$ from two-sided t tests.

	Outcome variable:			
	Vaccine willingness scale	Willing to take a vaccine	Months would wait to get vaccinated (reversed)	Encourage others to get vaccinated
	(1)	(2)	(3)	(4)
Current	0:076	0:066	0:295	0:066
	(0:081)	(0:042)	(0:220)	(0:046)
Current rate below herd opinion	0:054	0:043	0:165	0:006
	(0:074)	(0:039)	(0:177)	(0:048)
Current Current rate below herd opinion	0:084	0:093	0:243	0:066
	(0:103)	(0:052)	(0:267)	(0:059)
Outcome range	[1,5]	$f0,1g$	[0,12]	$f0,1g$
Control outcome mean	3.37	0.48	6.32	0.53
Control outcome std. dev.	1.14	0.50	4.3	0.50
Observations	2,899	2,899	2,865	2,770
R^2	0:508	0:483	0:724	0:403

Supplementary Table 30: **The effect of being informed that the current rate of vaccination willingness in the population is above/below the rate required for herd immunity, using population rake weights.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space), weight observations by the inverse probability of treatment assignment and population rake weights, and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0:1$, ** denotes $p < 0:05$, *** denotes $p < 0:01$ from two-sided t tests.

	Outcome variable:			
	Vaccine willingness scale (1)	Willing to take a vaccine (2)	Months would wait to get vaccinated (reversed) (3)	Encourage others to get vaccinated (4)
Panel A: All countries pooled				
Altruism	0.016	0.002	0.087	0.011
	(0.049)	(0.021)	(0.117)	(0.024)
Economic recovery	0.061	0.010	0.017	0.051
	(0.047)	(0.020)	(0.123)	(0.023)
Social approval	0.172	0.043	0.297	0.020
	(0.052)	(0.022)	(0.140)	(0.024)
Outcome range	[1,5]	{0,1}	[1,12]	{0,1}
Control outcome mean	3.24	0.43	6.28	0.56
Control outcome std. dev.	1.17	0.50	4.39	0.50
Observations	6,803	6,803	6,732	6,519
R^2	0.452	0.466	0.737	0.348
Panel B: Argentina				
Altruism	0.146	0.073	0.080	0.045
	(0.117)	(0.055)	(0.252)	(0.061)
Economic recovery	0.239	0.084	0.041	0.083
	(0.130)	(0.058)	(0.274)	(0.058)
Social approval	0.142	0.022	0.163	0.006
	(0.123)	(0.058)	(0.282)	(0.061)
Outcome range	[1,5]	{0,1}	[1,12]	{0,1}
Control outcome mean	3.07	0.37	5.56	0.48
Control outcome std. dev.	1.08	0.48	4.42	0.50
Observations	1,130	1,130	1,120	1,081
R^2	0.417	0.437	0.805	0.371
Panel C: Brazil				
Altruism	0.115	0.034	0.364	0.021
	(0.085)	(0.038)	(0.261)	(0.042)
Economic recovery	0.087	0.024	0.782	0.035
	(0.075)	(0.034)	(0.237)	(0.042)
Social approval	0.188	0.085	1.111	0.043
	(0.080)	(0.037)	(0.286)	(0.045)
Outcome range	[1,5]	{0,1}	[1,12]	{0,1}
Control outcome mean	3.31	0.41	5.45	0.46
Control outcome std. dev.	1.22	0.49	4.58	0.50
Observations	1,195	1,195	1,172	1,119
R^2	0.559	0.523	0.693	0.377
Panel D: Chile				
Altruism	0.148	0.077	0.089	0.025
	(0.110)	(0.043)	(0.248)	(0.052)
Economic recovery	0.094	0.068	0.210	0.080
	(0.112)	(0.044)	(0.300)	(0.052)
Social approval	0.156	0.114	0.628	0.088
	(0.103)	(0.045)	(0.312)	(0.051)
Outcome range	[1,5]	{0,1}	[1,12]	{0,1}
Control outcome mean	3.01	0.32	5.11	0.49
Control outcome std. dev.	1.16	0.47	4.49	0.50
Observations	1,085	1,085	1,077	1,052
R^2	0.456	0.447	0.733	0.313
Panel E: Colombia				
Altruism	0.003	0.028	0.676	0.050
	(0.108)	(0.042)	(0.210)	(0.047)
Economic recovery	0.037	0.015	0.034	0.039
	(0.094)	(0.038)	(0.185)	(0.046)
Social approval	0.133	0.027	0.259	0.059
	(0.094)	(0.039)	(0.247)	(0.049)
Outcome range	1-5	0-1	0-12	0-1
Control outcome mean	3.26	0.42	6.36	0.56
Control outcome std. dev.	1.20	0.49	4.49	0.50
Observations	1,109	1,109	1,098	1,063
R^2	0.458	0.480	0.791	0.360
Panel F: México				
Altruism	0.172	0.010	0.249	0.003
	(0.139)	(0.061)	(0.283)	(0.071)
Economic recovery	0.065	0.069	0.137	0.038
	(0.130)	(0.053)	(0.346)	(0.063)
Social approval	0.285	0.020	0.387	0.049
	(0.150)	(0.058)	(0.350)	(0.063)
Outcome range	[1,5]	{0,1}	[1,12]	{0,1}
Control outcome mean	3.49	0.59	7.55	0.70
Control outcome std. dev.	1.20	0.49	3.81	0.46
Observations	1,072	1,072	1,069	1,046
R^2	0.433	0.499	0.721	0.364
Panel G: Perú				
Altruism	0.057	0.024	1.044	0.075
	(0.107)	(0.051)	(0.364)	(0.057)
Economic recovery	0.034	0.020	1.014	0.043
	(0.095)	(0.049)	(0.326)	(0.054)
Social approval	0.041	0.006	0.818	0.050
	(0.109)	(0.052)	(0.390)	(0.056)
Outcome range	[1,5]	{0,1}	[1,12]	{0,1}
Control outcome mean	3.14	0.40	6.95	0.57
Control outcome std. dev.	1.09	0.49	4.20	0.50
Observations	1,212	1,212	1,196	1,158
R^2	0.355	0.384	0.681	0.297

Supplementary Table 31: **Effect of different types of motivational message on vaccine willingness, using population rake weights.** All specifications include country block fixed effects and (standardized) pre-treatment wait until vaccination as covariates (omitted to save space), weight observations by population rake weights, and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$ from two-sided t tests.

SI.16 Full survey questionnaire

Below we include the full survey instrument in Spanish. The Portuguese translation is available upon request. English translations for the information treatment conditions, motivation treatment conditions, and main outcome variables are, respectively, provided in SI sections SI.1, SI.2, and SI.4.

COLUMBIA UNIVERSITY
Institute for Social and Economic Research and Policy

Introduction

¡Hola!

Nos gustaría invitarlo a **participar en una encuesta para entender qué piensa la gente sobre la pandemia COVID-19**. Este estudio está siendo liderado por un grupo de investigadores de la Universidad de Columbia, Estados Unidos. Si usted desea participar, la encuesta le tomará aproximadamente **20 minutos**.

Su participación en el estudio es voluntaria. Además, una vez que termine la encuesta, la empresa Netquest lo recompensará. Sus respuestas se mantendrán estrictamente confidenciales. Usted puede terminar la encuesta en cualquier momento.

En caso de que tenga cualquier pregunta, duda, queja o comentario sobre este estudio, por favor contacte a John Marshall de la Universidad de Columbia, cuyo correo electrónico es jm4401@columbia.edu. Si tiene preguntas sobre sus derechos como sujeto de investigación, puede contactar al Comité de Ética Institucional de la Universidad de Columbia en el teléfono número +1 212 305 5883 o por correo electrónico askirboffice@columbia.edu.

Si desea participar en este estudio, haga click en el botón a continuación.

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Screening/willingness questions

¿Hasta qué punto está usted de acuerdo o en desacuerdo?

Si una vacuna contra el COVID-19 estuviera disponible, yo me vacunaría.

- ○ Muy en desacuerdo
- ○ En desacuerdo
- ○ Ni de acuerdo ni en desacuerdo
- ○ De acuerdo
- ○ Muy de acuerdo
- ○ No estoy seguro

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Si una vacuna contra el COVID-19 estuviera disponible para usted ahora, ¿cuántos meses esperaría antes de vacunarse?

- ○ [ ] Numero de meses:
- ○ Nunca tomaría una vacuna

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Si una vacuna contra el COVID-19 estuviera disponible para todos ahora, ¿aproximadamente qué porcentaje de personas de su municipio piensa que se vacunarían?

0 25 50 75 100

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Si una vacuna contra el COVID-19 estuviera disponible para todos ahora, ¿aproximadamente qué porcentaje de personas de su municipio piensa que se vacunarían **durante los primeros dos meses de su disponibilidad**?

0 25 50 75 100

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Quota questions

¿Cuál es su edad? (años cumplidos)

¿En qué municipio vive usted?

Estado

Municipio

¿Cuál fue el último año de enseñanza que usted completó o aprobó?

Nivel de educación

Años completados o aprobados en este nivel

¿Cuál es su género?

- ○ Femenino
- ○ Masculino
- ○ Otro

Background and attention questions

¿Su hogar tiene electricidad, agua corriente, o drenaje? Seleccione todas las que correspondan.

- ☐ Drenaje
- ☐ Electricidad
- ☐ Agua Corriente
- ☐ Ninguna

¿Cuál es su religión?

- ○ Católico
- ○ Protestante, Protestante Tradicional, o Protestante no Evangélico
- ○ Evangélico o Pentecostal
- ○ Islam
- ○ Hinduista
- ○ Budista
- ○ Religiones Tradicionales o Nativas
- ○ Ninguna
- ○ Agnóstico o ateo
- ○ Otra:

¿Cuál es la ciudad capital de ${e://Field/country}?

- ○ Brasília
- ○ Santiago
- ○ Bogotá
- ○ Buenos Aires
- ○ Lima
- ○ Ciudad de México

Pre-treatment questions

¿Con qué frecuencia consume **noticias sobre COVID-19** de las siguientes fuentes?

	Nunca	Una vez cada dos meses	Una vez al mes	Una vez cada dos semanas	Una vez por semana	Varias veces por semana	Diariamente
Periódicos	○	○	○	○	○	○	○
Televisión	○	○	○	○	○	○	○
Radio	○	○	○	○	○	○	○
Conversaciones con otros	○	○	○	○	○	○	○
WhatsApp	○	○	○	○	○	○	○
Redes sociales (e.j. Facebook, Twitter)	○	○	○	○	○	○	○
Sitios web de noticias	○	○	○	○	○	○	○

En su opinión, ¿qué tan serio es el tema del COVID-19 en ${e://Field/country}?

- ○ Nada serio
- ○ Poco serio
- ○ Algo serio
- ○ Muy serio
- ○ No sé

Pensando en COVID-19, ¿qué tema le preocupa más?

- ○ No poder educar a los jóvenes
- ○ Salud mental
- ○ Impacto económico
- ○ Salud física
- ○ Impacto político
- ○ No estoy preocupado por el COVID-19
- ○ No sé

Para que el COVID-19 pare de propagarse, ¿qué porcentaje de personas piensa que necesita vacunarse?

0 25 50 75 100

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¿Hasta qué punto está usted de acuerdo o en desacuerdo con las siguientes declaraciones?

	Muy en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Muy de acuerdo
Confío en que expertos médicos internacionales desarrollen vacunas seguras y eficaces.	○	○	○	○	○
Vacunarme es una buena manera para protegerme de enfermedades.	○	○	○	○	○
Confío que el gobierno determine si las vacunas son seguras y eficaces.	○	○	○	○	○
Vacunarme contra enfermedades que pueden ser graves es importante para la salud de los demás en mi comunidad.	○	○	○	○	○
Generalmente, sigo las indicaciones de mi médico sobre vacunaciones.	○	○	○	○	○

¿Alguna vez ha rechazado una vacuna recomendada para usted o sus hijos?

- ○ No
- ○ Sí
- ○ No sé
- ○ Prefiero no decir
- ○ No aplica

¿Cuáles de las siguentes opciones describe por qué duda en tomar una vacuna en contra del COVID-19? Seleccione todas las que correspondan.

- [ ] Ya tuve COVID-19
- [ ] Temo que las vacunas están siendo desarolladas demasiado rápido
- [ ] Mi riesgo de contraer el COVID-19 es tan bajo que no necesito la vacuna
- [ ] Estoy preocupado por los efectos secundarios
- [ ] No creo que las vacunas sean efectivas contra el COVID-19
- [ ] No confió en el gobierno
- [ ] Temo que la vacuna me dará COVID-19
- [ ] Prefiero adquirir inmunidad tras contraer COVID-19, sin necesidad de una vacuna
- [ ] Temo que no podré pagar una vacuna para el COVID-19
- [ ] Estoy en contra de las vacunas
- [ ] _____ Otra:

¿Sufre de algunas de las siguientes enfermedades crónicas? Seleccione todas las que correspondan.

- [ ] Ninguna
- [ ] Enfermedades cardiovasculares
- [ ] Enfermedades autoinmunes
- [ ] Diabetes
- [ ] Enfermedad pulmonar obstructiva crónica
- [ ] Obesidad
- [ ] Prefiero no decir

¿Ha sido diagnosticado con COVID-19?

- ○ No, nunca he sido diagnosticado con COVID-19
- ○ Sí, actualmente tengo COVID-19
- ○ Sí, he tenido COVID-19 en el pasado
- ○ Prefiero no decir

¿Conoce a alguien que se enfermó gravemente o falleció debido a COVID-19?

- ○ No
- ○ Sí
- ○ No sé

¿Considera usted que su situación económica personal es peor, igual, o mejor que antes de la pandemia?

- ○ Mucho peor
- ○ Peor
- ○ Igual
- ○ Mejor
- ○ Mucho mejor
- ○ No sé

En su opinión, ¿cuán prioritario es para el gobierno distribuir una vacuna en su municipio?

- ○ No es una prioridad
- ○ Una prioridad baja
- ○ Una prioridad media
- ○ Una prioridad alta
- ○ Una máxima prioridad
- ○ No sé

Hoy en día cuando se habla de **tendencias políticas**, mucha gente habla de aquellos que simpatizan más con la izquierda o con la derecha. Según el sentido que tengan para usted los términos "izquierda" y "derecha" cuando piensa sobre su punto de vista político, ¿dónde se encontraría usted en esta escala?

0 (extrema izquierda)	1	2	3	4	5 (centro)	6	7	8	9	10 (extrema derecha)
○	○	○	○	○	○	○	○	○	○	○

Con respecto al manejo de la pandemia, ¿qué tan satisfecho está usted con las siguientes autoridades?

	Nada satisfecho	No satisfecho	Ni satisfecho ni insatisfecho	Satisfecho	Muy satisfecho
Presidente ${e://Field /president}	○	○	○	○	○
${e://Field /health_ministry}	○	○	○	○	○
${e://Field /mayor_gender} de su municipalidad	○	○	○	○	○

Si hubiese una **elección presidencial** mañana, ¿votaría usted a favor del partido o alguien de la coalición del Presidente ${e://Field/president}?

- ○ No, votaría por un candidato de la oposición
- ○ Sí
- ○ No votaría
- ○ No sé

¿Por cuál partido de la oposición votaría en una elección presidencial?

- ○ PAN
- ○ PRI
- ○ PRD
- ○ PT
- ○ PVEM
- ○ MC
- ○ PES
- ○ RSP
- ○ FSP
- ○ [ ] Otro:
- ○ No sé

Si la **elección para ${e://Field/mayor} en su municipio** fuese mañana, ¿votaría usted a favor del partido o alguien de la coalición del actual ${e://Field/mayor}?

- ○ » Sí
- ○ » No, votaría por un candidato de la oposición
- ○ » No votaría
- ○ » No sé

La vacuna será administrada por ^ H) L H O G G L V W U L E X W L R Q B ` ^ H

Si esta vacuna estuviese disponible, me vacunaría.

- ○ No
- ○ Sí
- ○ No sé

Si esta vacuna estuviese disponible, ¿cuántos meses esperaría para vacunarse?

- ○ [ ] Número de meses:
- ○ Nunca tomaría esta vacuna

Si esta vacuna estuviese disponible, ¿cuán de acuerdo está con las siguientes declaraciones?

	Muy en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Muy de acuerdo
» La propagación de COVID-19 terminará rapidamente.	○	○	○	○	○
» Sería muy poco probable que me dé COVID-19 si recibo esta vacuna.	○	○	○	○	○
» Sería muy poco probable que sufra algún daño si recibo esta vacuna.	○	○	○	○	○
» Esta campaña de vacunación del gobierno es para ayudar a los ciudadanos.	○	○	○	○	○

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Conjoint experiment 4

Ahora, le mostraremos un **escenario diferente**.

Suponga que ${e://Field/country} ha obtenido ^ H) L H O G Y D F F L Q H B ` ^ H H I I L F D F \ B `

Esta vacuna es gratis para todos y ^ H) L H O G H Q F R X U D J D Q G H *recomienda que todos se vacunen lo más pronto posible.*

La vacuna será administrada por ^ H) L H O G G L V W U L E X W L R Q B ` ^ H

Si esta vacuna estuviese disponible, me vacunaría.

- ○ No
- ○ Sí
- ○ No sé

Si esta vacuna estuviese disponible, ¿cuántos meses esperaría para vacunarse?

- ○ [ ] Número de meses:
- ○ Nunca tomaría esta vacuna

Si esta vacuna estuviese disponible, ¿cuán de acuerdo está con las siguientes declaraciones?

	Muy en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Muy de acuerdo
» La propagación de COVID-19 terminará rapidamente.	○	○	○	○	○
» Sería muy poco probable que me dé COVID-19 si recibo esta vacuna.	○	○	○	○	○
» Sería muy poco probable que sufra algún daño si recibo esta vacuna.	○	○	○	○	○
» Esta campaña de vacunación del gobierno es para ayudar a los ciudadanos.	○	○	○	○	○

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Conjoint experiment 5

Ahora, le mostraremos un **escenario diferente**. Este es el último escenario.

Suponga que ${e://Field/country} ha obtenido ^ H) L H O G Y D F F L Q H B ` ^ H H I I L F D F \ B `

Esta vacuna es gratis para todos y ^ H) L H O G H Q F R P L H Q G D Q G R T X H W R G R V *se vacunen lo más pronto posible.*

La vacuna será administrada por ^ H) L H O G G L V W U L E X W L R Q B ` ^ H

Si esta vacuna estuviese disponible, me vacunaría.

- ○ No
- ○ Sí
- ○ No sé

Si esta vacuna estuviese disponible, ¿cuántos meses esperaría para vacunarse?

- ○ [ ] Número de meses:
- ○ Nunca tomaría esta vacuna

Si esta vacuna estuviese disponible, ¿cuán de acuerdo está con las siguientes declaraciones?

	Muy en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Muy de acuerdo
» La propagación de COVID-19 terminará rapidamente.	○	○	○	○	○
» Sería muy poco probable que me dé COVID-19 si recibo esta vacuna.	○	○	○	○	○
» Sería muy poco probable que sufra algún daño si recibo esta vacuna.	○	○	○	○	○
» Esta campaña de vacunación del gobierno es para ayudar a los ciudadanos.	○	○	○	○	○

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Open-ended question and nationality

Pensando en los diferentes escenarios que usted ha visto, ¿qué factores lo harían más dispuesto a tomar una vacuna sobre otra? Por favor, sea breve en su respuesta.

¿Cuál es su nacionalidad?

Behavioral question

¿Quisiera recibir un link de la Organización Panamericana de la Salud con más información sobre las vacunas del COVID-19?

Si usted selecciona sí, lo verá en la siguiente pantalla.

- ○ No
- ○ Sí

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Este es el enlace: haga click aquí.

Este enlace abrirá en una nueva pestaña; por favor recuerde completar la encuesta.

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