

COVID-19 vaccine acceptance in low- and middle-income countries and recommendations to increase uptake



In brief

- This study analyses willingness to vaccinate against COVID-19 from surveys covering 10 low- and middle-income countries in Asia, Africa, and South America.
- Willingness to vaccinate is considerably higher in these low- and middle-income countries (80% of respondents) than in the United States (65%) and Russia (30%).
- The results suggest prioritising vaccine distribution to low- and middle-income countries should yield high returns in promoting global immunisation coverage, and that vaccination campaigns in these countries should focus on translating acceptance into uptake.
- Personal protection against COVID-19 is the main reason given for vaccine acceptance in these low- and middle-income countries (91% of respondents). Concerns about side effects (44%) is the most common reason given for vaccine hesitancy.
- Health workers are considered the most trusted sources of information about COVID-19 vaccines (48% of respondents).
- This brief recommends using health workers to deliver vaccine information, investing in ‘last-mile’ nudges, leveraging pro-vaccine attitudes, and focusing messaging on vaccine effectiveness to increase vaccine uptake in low- and middle-income countries.

This brief summarises the findings of Arce et al. 2021.

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About the study

As vaccination campaigns to protect against COVID-19 continue and ramp up worldwide, addressing hesitancy around vaccines is vital for achieving sufficient immunisation coverage to end the pandemic. This brief summarises the findings of a study (Arce et al. 2021) analysing COVID-19 vaccine acceptance across ten low- and middle-income countries in Asia, Africa, and South America, and two higher income countries (Russia and the United States), and recommends that messaging campaigns engage health workers as spokespeople and incorporate information about vaccine effectiveness into messaging.

“Willingness to take a COVID-19 vaccine was considerably higher in the low- and middle-income countries covered in the study (averaging 80% of respondents) than in the US (65%) and Russia (30%).”

In a collective effort bringing together 15 studies, researchers from over 30 institutions surveyed over 20,000 individuals between June 2020 and January 2021 on questions regarding respondents’ vaccine acceptance and hesitancy and their most trusted sources for vaccination advice. During some surveys, results from COVID-19 vaccine clinical trials had yet to be announced, and during later surveys, governments had started approving vaccines for use. The fast-moving nature of COVID-19 information may change people’s perceptions about vaccines by the time they are widely available in low- and middle-income countries (LMICs). Over the past six months, the body of evidence demonstrating the safety and efficacy of available COVID-19 vaccines, which have been given to millions of people, has become clearer. At the same time, severe, but rare, side effects may have undermined public confidence.

This data covering a broad selection of LMICs comes at a critical juncture when vaccine shipments are still slow to arrive to the majority of the world’s population. The brief illustrates that prioritising the distribution of vaccines to LMICs is likely to be successful in expanding global immunisation coverage. It recommends that governments and international organisations use the lag time in vaccine delivery to focus on effectively designing and implementing vaccine uptake programmes and campaigns.



Photo: Getty Images

Willingness to vaccinate is higher in low- and middle-income countries than in the US and Russia

Willingness to take a COVID-19 vaccine was considerably higher in the low- and middle-income countries covered in the study (averaging 80% of respondents) than in the US (65%) and Russia (30%).

Household surveys from Africa (Burkina Faso, Mozambique, Nigeria, Rwanda, Sierra Leone, Uganda), Asia (Bangladesh, India, Nepal, Pakistan), and Latin America (Colombia) showed a vaccine acceptance rate ranging between 67% (Burkina Faso) and 97% (Nepal).

Figure 1: Acceptance rates, overall and by respondent characteristics

If a COVID-19 vaccine becomes available in [country], would you take it?

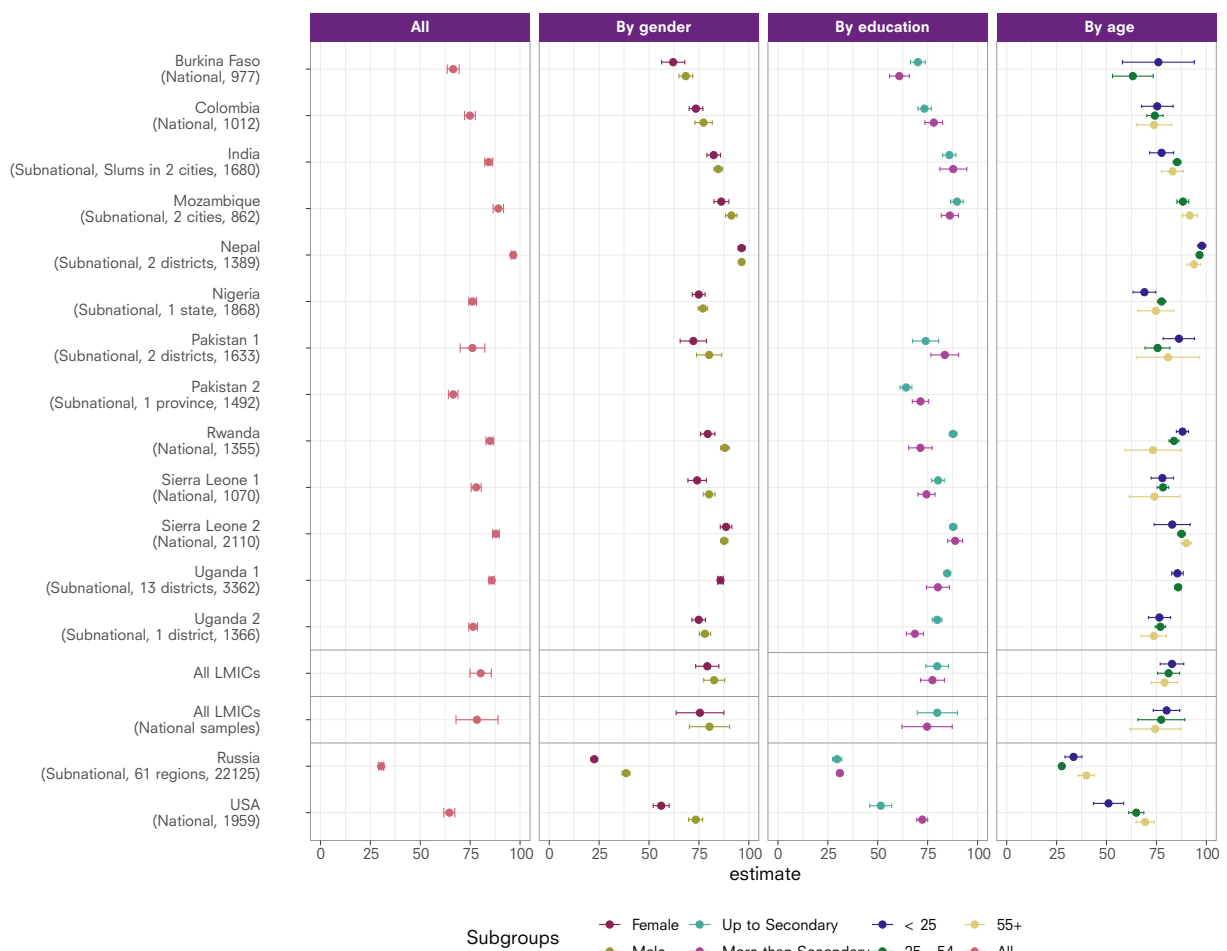


Figure 1 presents average acceptance of the COVID-19 vaccine across studies and subgroups within studies. For each study, we summarize sampling information in parentheses in the following way: First, we indicate whether the geographic coverage of the sample is national or subnational. If the coverage is subnational we provide further details. Second, we list the number of observations included in the study. In the plot, points represent the estimated percentage of individuals who would take the vaccine. “No”, “Don’t know” and “Refuse” are taken as a single reference category. Bars around each point indicate a 95% confidence interval for the estimate. An estimate of average acceptance for all studies in LMICs (excluding USA and Russia) is also shown.

“Health workers were considered the most trusted sources of information about COVID-19 vaccines, as reported by an average 48% of respondents in low- and middle-income countries.”

Acceptance of childhood vaccines for common diseases like measles and tetanus is generally high in low- and middle-income countries, providing a reason for optimism about uptake of COVID-19 vaccines.

Even before COVID-19, Wellcome Trust surveys found people in higher income countries were more skeptical about the safety of vaccines for other diseases than people in low-income countries, which may help explain the large difference in COVID-19 vaccine acceptance rates. This is especially true in Russia, an upper-middle income country, where only 48% of people considered vaccines safe (Wellcome Trust 2018).

Personal protection against COVID-19 is main reason for vaccine acceptance

In all countries surveyed, the most common reason given for vaccine acceptance was personal protection against COVID-19 infection -- with the average being 91% of respondents in low- and middle-income countries, 94% in the US, and 76% in Russia.

In distant second place, low- and middle-income country respondents reported willingness to take the COVID-19 vaccine in order to protect their families (36% of respondents). Compared to self-protection, protecting the community did not feature prominently in the stated reasons (14% of respondents).

This evidence suggests that public appeals promoting the benefits of vaccination to personal wellbeing may be particularly effective in encouraging uptake in these contexts. Notably, this differs from the generally pro-social angle that messaging around the use of masks has taken.

Concerns about side effects is the most common reason for vaccine hesitancy

The most common reason expressed for hesitancy to take the vaccine in low- and middle-income countries was concern about side effects (averaging 44% of respondents who said they were not willing to take the vaccine). Respondents in Russia (37%) and the US (79%) reported high levels of this same concern.

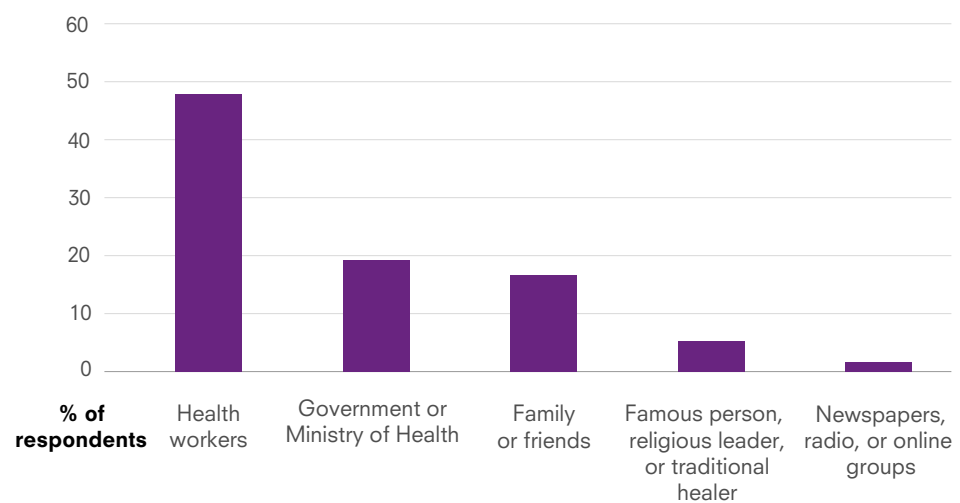
Serious side effects from COVID-19 vaccines that are life-threatening or require hospitalisation are very rare. For example, only 0.2% of vaccine recipients in the UK reported suspected side effects from the Pfizer/BioNTech vaccine (as of end May 2021). One potential explanation for the outsized concern about side effects could be that information about features of the COVID-19 vaccines was not widely available at the time the surveys were taken. Headline-grabbing stories about are relatively rare, but serious, side effects and the spread of fake news may contribute as well.

Health workers are most trusted for vaccine information

Health workers were considered the most trusted sources of information about COVID-19 vaccines, as reported by an average 48% of respondents in low- and middle-income countries. Government (19%) and family or friends (17%) were also listed as trusted sources.

Public health programmes and campaigns that engage local health workers may be particularly effective in encouraging timely and complete vaccine uptake (two doses), and persuading people who are still hesitant to take the vaccine.

Figure 2: Most trusted source for COVID-19 vaccine decisionmaking (developing country respondents)



Policy recommendations

The data provided by this study – one of the first to document rates of COVID-19 vaccine acceptance in a large set of low- and middle-income countries – comes at a critical time to inform national and international efforts to ensure vaccine uptake. While COVAX – the global initiative led by UNICEF, Gavi, the WHO, and others to ensure access to vaccines for all countries – has shipped 81 million vaccines to 129 countries (as of June 2021), low- and middle-income countries continue to severely lag behind high income countries in vaccine supply. According to the WHO, 75% of those COVAX vaccines have been sent to only 10 countries. Less than 1% of all vaccines have gone to low-income countries.

Importantly, this study shows prioritising vaccine distribution to low- and middle-income countries should yield high returns in promoting global immunisation coverage. The next few months will therefore be crucial for decision-making around vaccination campaign strategies to ensure that increasing supplies translate to rapid uptake. The evidence from this study supports the following policy priorities for governments and international organisations.

- 1. Health workers should deliver vaccine uptake messages.** Social and behavioural change communication (SBCC) strategies that engage local health workers may be particularly effective to encourage timely and complete vaccine uptake, and target those who are uncertain about vaccination. This study's data strongly support the view that those with the most relevant expertise -- as opposed to celebrities or general opinion leaders -- are most trusted on this specific topic and are therefore best positioned to deliver the message.
- 2. Investing in 'last-mile' nudges to help people follow through with vaccinations could have high returns.** Given such a high rate of vaccine acceptance in the ten low- and middle-income countries included in this study, direct nudges -- like reminder messages from healthcare providers and alerts about vaccine appointments -- can encourage people to start and complete their two-dose COVID-19 vaccinations. Two recent studies from the US have shown these types of last-mile nudges can be effective (Milkman et al. 2021). There is also evidence childhood vaccination reminders plus cash incentives in Kenya substantially increased full immunisation (Gibson et al. 2017), and in-kind incentive programmes in India have also proven effective (Banerjee et al. 2010).
- 3. Pro-vaccine attitudes can be leveraged to convert intent to uptake.** High acceptance of childhood vaccines and significant trust in friends or family as information sources suggest that widespread pro-vaccine attitudes could help convert intent to vaccinate to actual vaccine uptake. Positive social signalling about COVID-19 vaccines in communities could help individuals follow through with taking their vaccine doses, as evidenced by research on child immunisations from Sierra Leone (Karing 2018).
- 4. Messaging should highlight the high effectiveness of current COVID-19 vaccines.** Public health messaging should focus on the efficacy of the currently available COVID-19 vaccines in reducing or eliminating disease, hospitalisations, and death. Referencing clinical data -- for example, the very low rate of reported side effects from currently available vaccines -- that addresses people's concerns about potential side effects should be prioritised and could help dispel fake news about vaccines. A recent study found that fake news about COVID-19 was widespread in Indian slums, but doctors' messages were effective in debunking this misinformation (Augsburg et al. 2021). Messaging should also emphasise the direct personal protection benefits of the vaccine.

References

Arce, Julio S. Solis, Shana S. Warren, Niccolò F. Meriggi, Alexandra Scacco, Nina McMurry, Maarten Voors, Georgiy Syunyaev, et al. 2021. “COVID-19 Vaccine Acceptance and Hesitancy in Low and Middle Income Countries, and Implications for Messaging”. *Nature Medicine*.

Armand, Alex, Britta Augsburg, and Antonella Bancalari. 2020. “Coping with COVID-19 in Slums: Evidence from India”. IGC Final Report COVID19-20077-IND-1. Available: <https://www.theigc.org/project/coping-with-covid-19-measures-in-informal-settlements/>

Banerjee, Abhijit V., Esther Duflo, Rachel Glennerster, and Dhuvra Kothari. 2010. “Improving immunisation coverage in rural india: Clustered randomised controlled evaluation of immunisation campaigns with and without incentives”. *BMJ*.

Karing, Anne. 2018. “Social Signaling and Childhood Immunization: A Field Experiment in Sierra Leone”. IPA Working paper. Available: <https://www.poverty-action.org/publication/social-signaling-and-childhood-immunization-field-experiment-sierra-leone>

Gibson, Dustin G., Benard Ochieng, E. Wangeci Kagucia, Joyce Were, Kyla Hayford, Lawrence H Moulton, Orin S Levine, et al. 2017. “Mobile phone-delivered reminders and incentives to improve childhood immunisation coverage and timeliness in Kenya (m-SIMU): a cluster randomised controlled trial”. *The Lancet Global Health*.

Milkman, Katherine L., Mitesh S. Patel, Linnea Gandhi, Heather Graci, Dena Gromet, Hung Ho, Joseph Kay, et al. 2021. “A mega-study of text-based nudges encouraging patients to get vaccinated at an upcoming doctor’s appointment”. *Proceedings of the National Academy of Sciences*.

Milkman, Katherine L., Mitesh S. Patel, Linnea Gandhi, Heather Graci, Dena Gromet, Hung Ho, Joseph Kay, et al. 2021. “A mega-study of text-message nudges encouraging patients to get vaccinated at their pharmacy”.

Wellcome Trust, 2018. Wellcome Global Monitor 2018. Available: <https://wellcome.org/reports/wellcome-global-monitor/2018>

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