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**Timeline**

2020-2021

**Sample Size**

44,260 respondents (20,176 individuals from 10 LMICs and 24,084 from the USA and Russia)

**Research Implemented by IPA**

Yes

# COVID-19 Vaccine Acceptance and Hesitancy in Low-and-Middle Income Countries

## Abstract

As COVID-19 vaccination ramps up worldwide, understanding factors that may lead people in low- and middle-income countries (LMICs) to reject COVID-19 vaccination is of global concern, as lags in vaccination could facilitate global spread of virus variants. Researchers surveyed nearly 45,000 individuals in 10 LMICs, the United States, and Russia between June 2020 and January 2021 on vaccine acceptance and trusted sources for vaccination advice. They found high levels of vaccine acceptance in LMICs, with an average acceptance rate of 80 percent among respondents, and self-protection as the primary motivation. Respondents' top cited concern with the vaccines are potential side effects. Finally, health workers are considered the most trusted information sources on vaccines. Governments can improve vaccination campaigns by appealing to self-protection and partnering with health workers to promote public health messaging.

## Policy Issue

Safe and effective vaccines against COVID-19 are a critical tool to control the pandemic. Following clinical trials, several vaccines have been approved in multiple countries and, as of December 2020, are being distributed across the globe. Despite gains in vaccine sharing and donation agreements, as of July 2021, global vaccine distribution remains highly unequal, with much of the current supply and uptake in high-income countries.<sup>1</sup>

While effective and equitable distribution of vaccines is a key policy priority, ensuring the population's acceptance and adherence to vaccine regimens is equally important. Acceptance of vaccines and trust in the institutions that administer them are likely key to the success of any vaccination campaign.<sup>2</sup> To effectively promote immunization and devise messaging strategies, policymakers and healthcare providers need to know if people are willing to take a vaccine, the reasons why they are willing or unwilling to do so, and the factors influencing their decision-making.

Several studies investigate high-income country residents' willingness to take a potential COVID-19 vaccine,<sup>3,4</sup> yet comparatively little is known about acceptance rates in low- and middle-income countries, where the majority of the world's population resides. Understanding factors that may lead people in lower-income settings to reject COVID-19 vaccination is of global concern since a lag in vaccination in the developing world could facilitate the spread of new variants of the virus to other countries and potentially delay global recovery from the pandemic.

## Context of the Evaluation

Acceptance of childhood vaccination for common diseases —such as measles (MCV), Bacille Calmette-Guérin (BCG), and diphtheria, tetanus, and pertussis (DTP)—is generally high in low- and middle-income countries, providing reasons for optimism about future uptake of COVID-19 vaccines. Still, existing surveys on COVID-19 vaccine acceptance in high-income countries document large variations, both across and within countries, including in settings where overall vaccination rates are high.<sup>5</sup> These studies highlight concerns about COVID-19 vaccine safety, and particularly concerns about the speed of vaccine development, as reasons for hesitancy in higher-income settings. Similar concerns may apply in lower- and middle-income settings.

Additional reasons for hesitancy may feature more prominently in lower-income settings. Reported COVID-19 mortality rates have been lower in many of these countries than those in higher-income countries, though trends can quickly change.<sup>6</sup> If individuals in turn feel the risk of disease is less serious, they may be less inclined to accept perceived risks associated with taking a recently-developed vaccine. Previous studies have also highlighted factors such as concerns about healthcare quality,<sup>7</sup> negative historical experiences,<sup>8</sup> weak support from traditional leaders,<sup>9</sup> and mistrust in government<sup>10</sup> as barriers to healthcare utilization in lower-income countries.

To understand the factors that may lead people in low- and middle-income countries to reject COVID-19 vaccination, researchers developed and deployed a common set of questions across 15 studies in Africa, South Asia, and Latin America: seven in low-income countries (Burkina Faso, Mozambique, Rwanda, Sierra Leone, Uganda), five in lower-middle-income countries (India, Nepal, Nigeria, Pakistan), and one in an upper-middle-income country (Colombia). Researchers compared these findings to those from two countries at the forefront of vaccine research and development, Russia and the United States.

## Details of the Intervention

Researchers conducted 15 studies between June 2020 and January 2021 through phone-based and online platforms. Studies varied in terms of geographic scope, sampling methodology, and survey modality. Studies from Burkina Faso, Colombia, Rwanda, and Sierra Leone used nationally representative samples of active mobile phone numbers reached through random digit dialing (RDD). Studies in the United States and Russia were conducted online using quota samples obtained from private survey companies, and the remaining eight studies targeted sub-national populations. Taken together, the studies total 44,260 respondents: 20,176 individuals from 10 LMICs and 24,084 from the USA and Russia.

The main outcome measure in the surveys was vaccine acceptance. Respondents who answered “yes” to taking a vaccine once available were then asked about their main motivations, for example, whether it was self-protection or protection for others, for taking the vaccine. If the respondents said they would not be willing to take the vaccine, researchers followed up with a question to understand the respondents’ reasons for not

taking the vaccine.

Finally, regardless of respondents' expressed willingness to take the vaccine, researchers asked about actors and institutions who would be influential in their decision. Researchers also collected information on respondents' gender, age, and education level to assess response variation across demographic groups. In addition to producing country-level estimates, researchers combined data from all studies (other than the USA and Russia) to calculate an aggregate estimate for all low- and middle-income countries.

## Results and Policy Lessons

**Researchers found relatively high levels of vaccine acceptance in lower-income settings, with an average acceptance rate of 80 percent across the 10 countries.**

Furthermore, the acceptance rate in every low- to middle-income country sample was higher than in the USA (64.6 percent) and Russia (30.4 percent). 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 66.5 percent (Burkina Faso) and 96.6 percent (Nepal).

**The most common reason given for vaccine acceptance was personal protection against COVID-19 infection,** with an average of 91 percent of respondents in low-to-middle-income countries, 94 percent in the United States, and 76 percent in Russia. In the lower-income settings, people reported willingness to take the COVID-19 vaccine in order to protect their families, though at much lower rates for an average of 36 percent of respondents. Compared to self-protection, only 14 percent of respondents cited protecting the community as an important stated reason for getting vaccinated. This evidence suggests that public appeals promoting the benefits of vaccination to personal well-being may be more effective than those promoting the benefits to the well-being of others.

**The most common reason expressed for reluctance to take the vaccine in the lower income countries was concern about side effects,** cited by an average of 44 percent of LMIC respondents. Respondents in the US (79 percent) and Russia (37 percent) similarly expressed this concern.

**Health workers were considered the most trusted sources of information about COVID-19 vaccines,** as reported by an average of 48 percent of respondents in developing countries. Government (19 percent) and family or friends (17 percent) were also listed as trusted sources. These findings suggest that public health programs 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.

While global vaccine distribution has skewed heavily toward higher-income countries to date, the study's findings suggest that prioritizing distribution to LMICs may be a more efficient strategy for achieving immunity on a global scale and preventing the emergence of variants than attempting to convince high-income country residents who are still hesitant.

Once vaccine distribution to LMICs begins in earnest, these findings suggest that vaccination campaigns should focus on converting positive intentions into uptake, including through investment in ‘last-mile’ nudges. Recruiting health workers to deliver vaccine information, leveraging pro-vaccine social norms, and messaging focused on vaccine effectiveness and safety may be effective in addressing remaining hesitancy.

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