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Data synthesis: public perceptions of the COVID-19 vaccinations

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Situation

Since early 2021, most countries around the world have started vaccination campaigns after several COVID-19 vaccines became available in December 2020. By mid-April 2021, close to 735,000,000 vaccination doses had been administered, with over 405,000,000 individuals having received at least one vaccination dose, roughly 5 per cent of the global population.[1] However, there are considerable differences in the pace of progress in different parts of the world, with close to 60 per cent of vaccination doses being administered in just three countries: the United States of America, China, and India.[2] Issues of vaccine supply, coupled with capacity gaps to pay for the vaccine, resulted in growing concerns about equitable access to COVID-19 vaccines. Data from May 2021 shows that only 0.31 per cent of doses have been administered in low-income countries while 85 per cent have been administered in high and upper-middle[i] income countries.[3] Around the world, the countries grappling with humanitarian crises are among those with the least access to vaccines.[2]

Objective

This data synthesis brings together 66 data sources from quantitative surveys, across 107 countries and six regions. It also includes findings from an additional 29 qualitative studies and community feedback data which were collected between March 2020 and April 2021 (https://www.rcce-collective.net/data/behavioural-indicators/). This analysis intends to provide an overview of the existing data on vaccine perceptions and offer

recommendations to inform risk communication and community engagement (RCCE) strategies and policies in relation to COVID-19 vaccination programmes. It also helps identify knowledge and evidence gaps as well as highlight areas for further research investment.

Methodology

Data has been extracted from fieldwork assessments, phone-based and/or web-based Knowledge, Attitude and Practice (KAP) surveys and global opinion polls (phone and/or web-based). Data sources have been selected according to criteria (see explanation here) related to representativeness including sampling methods, sampling size and reported limitations or biases.

In order to measure vaccine acceptance rates, we have used a common indicator defined as 'percentage of individuals who would get vaccinated once a vaccine is available and recommended'. We then assessed each of the available data sources to identify survey questions in relation to vaccine acceptance. Among the 66 data sources, 1,112 survey questions related to vaccine acceptance: 91.4 perc cent of these questions strictly matched with the above indicator while 8.6 perc cent of the questions presented limitations and were classified to only approximately measure vaccine acceptance[ii].
This analysis includes data from those surveys where the questions strictly matched with the common indicator on vaccine acceptance. It further focused on data from individuals who reported to 'want to get

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[i] 15.36 per cent have been administered in lower middle-income countries, 42.99 per cent in upper middle-income countries, 41.34 per cent in high income countries

[ii] Questions categorised to approximately measure vaccine acceptance

included for example questions in relation to vaccine efficacy: 'If the vaccine was 95 per cent effective, would like to be vaccinated when it is provided freely by government?" and/or questions in relation to accessibility and affordability such as 'If a COVID-19 vaccine was available for free today, would you get it as soon as possible?"

vaccinated' and/or who 'will probably get vaccinated'. We excluded data from individuals who 'don't know' or 'want to wait' or 'refuse a COVID-19 vaccine'. To reflect the evolving nature of the COVID-19 response, we have recently adapted the inclusion criteria and integrated data about people who already got the COVID-19 vaccine, when measuring vaccine acceptance

Existing data available at country level has been consistently compiled and analysed. The regional and global level data has been aggregated and then weighted based on the population size to ascertain the rates equally.

While it was possible to identify some key themes and broad patterns in relation to COVID-19 vaccine perceptions, the type of data and quality of related data collection processes limit the use of these findings to guide more localized responses for which there is a need for localized research. There are additional limitations to deriving firm conclusions from these data:

- By weighting the national rate based on population size, the method limits the weight of small countries in the global and regional analysis and reinforces the weight of the largest countries such as China, India, or Brazil.
- Infrequent data collection and insufficient data make it difficult to differentiate between the Eastern and Southern African Region (ESAR) and

Western and Central African region (WCAR) and the data compiled for this analysis therefore presents the public acceptance of COVID-19 vaccination for the African continent.
- Disaggregation by gender and age is not systematic and at times the sample size limits the ability to report all findings by different age and gender groups.
- In some of the assessed humanitarian contexts, national level vaccine acceptance rates do not accurately represent the most vulnerable people due to survey designs and methods.
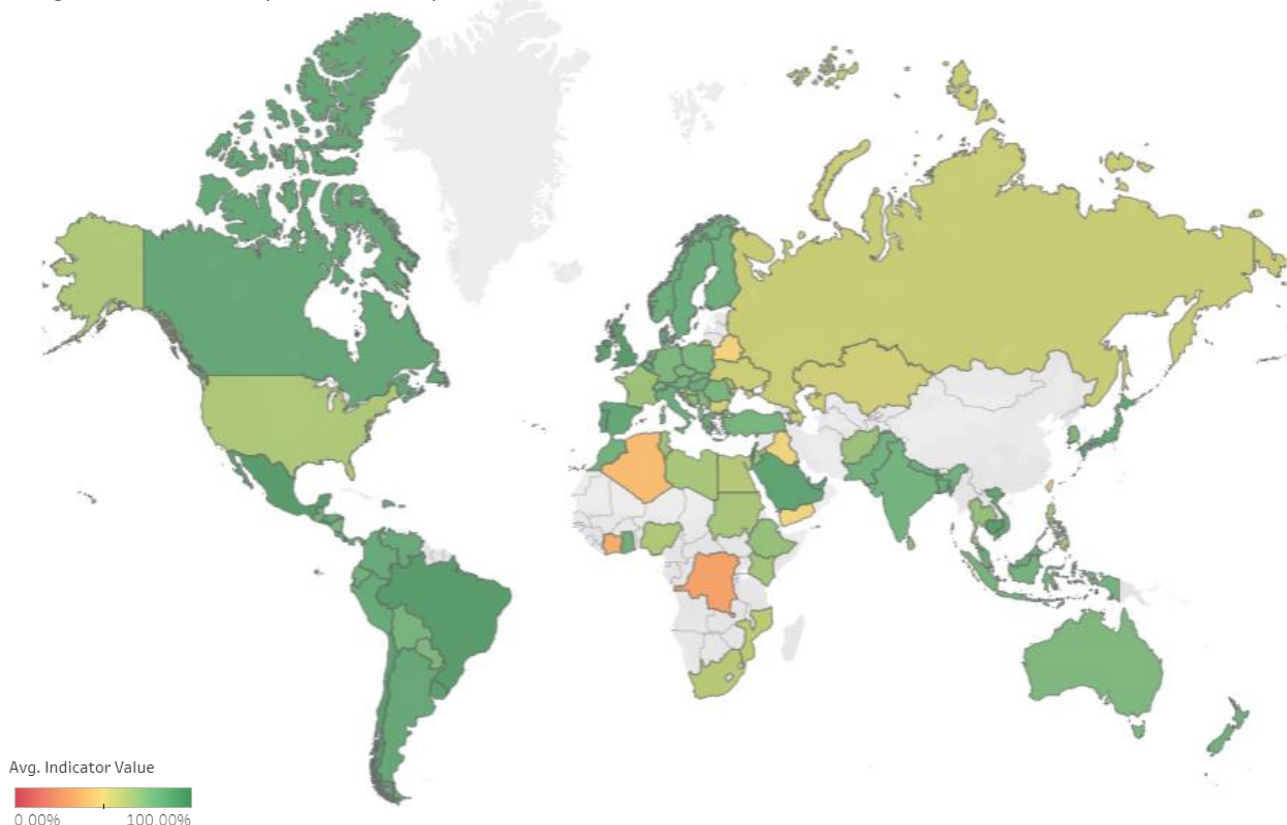
Vaccine acceptance

Globally, more than two thirds (74.8 per cent - April 2021) of respondents would agree to take a COVID-19 vaccine if it was available and recommended. Data triangulated across 66 surveys found slightly increasing (but not significant) acceptance rates since several COVID-19 vaccines were authorised in December 2020 (68.1 per cent).

Vaccine acceptance is generally high, but with significant differences between countries

Vaccine acceptance rates are however highly variable across different regions and countries (Figure 1).

Figure 1. Vaccine acceptance rate in April 2021

Avg. Indicator Value

0.00%   100.00%

For example, global vaccine acceptance rate ranges from as low as 34 per cent in DRC to as high as 93 per cent in Israel and 91 per cent in Mexico.

Low levels of vaccine acceptance can be found in Africa (59.7 per cent) compared to high vaccine acceptance rates in the Americas (79.3 per cent) and Asia (78.7 per cent) (Figure 2). According to the data, vaccine acceptance was initially lowest in Europe (49.7 per cent in November 2020) and has since significantly increased (73.2 per cent in April 2021). A substantial drop in vaccine acceptance rates was observed in Africa, particularly across Ethiopia (87 per cent in December 2020 compared to 69 per cent in April 2021) and Kenya (77 per cent compared to 65 per cent). Similar trends were also found in Thailand (Table 1). In Western Europe, however, levels of vaccine acceptance have significantly increased since December 2020, for example, in France (41 per cent compared to. 68 per cent). Moreover, high-income countries report relatively high public acceptance (75.9 per cent) compared to low-income countries (58.2 per cent).

Figure 2. Vaccine acceptance rates by region from November 2020 to April 2021
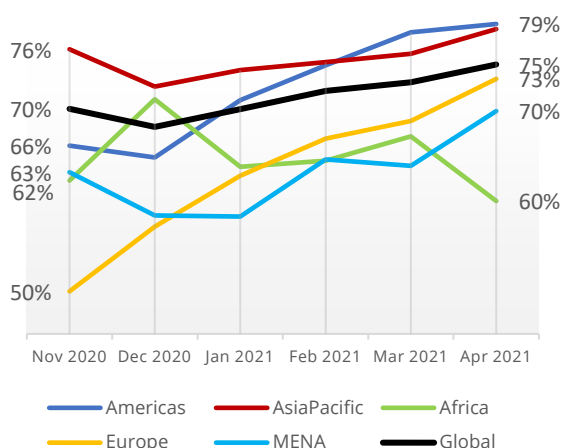

Table 1. Decrease of vaccine acceptance rates per country.

		Dec. 20	Apr. 21	+/-
	Ethiopia	87%	69%	-14
	Kenya	77%	65%	-13
	Thailand	83%	71%	-12
	Côte d'Ivoire	43%	38%	-5
	Taiwan, China	53%	48%	-5
	Iraq	55%	51%	-4
	Afghanistan	72%	69%	-3
	Nicaragua	80%	77%	-3

Socio-behavioural drivers for vaccine acceptance

Demographic factors

There are limited data allowing for the analysis of vaccine acceptance disaggregated by socio-demographic characteristics especially in relation to gender, age, race, education and whether the population is urban or rural.

Gender: between February and April 2021, only 11 of the 66 data sources provided gender-disaggregated data. This data suggested slightly higher (but not significant) acceptance levels from men when compared to women (73 per cent compared to 69 per cent). This is consistent with available regional level data (Africa, Middle East and Northern Africa (MENA), Asia, and Europe) although gender-related differences appeared to be more substantial in Africa where 48 per cent of women compared 58 per cent men said they would be willing to take a COVID-19 vaccine.

Age: The lack of universally standardised age group definitions makes it difficult to report on how different age groups perceive COVID-19 vaccines. A rapid review of existing studies revealed some conflicting results. For example, research in Kuwait found higher acceptance rates among younger age groups (21-24 years) compared to older age groups (55 to 64 years) while study findings from Greece suggested that older people (aged more than 65 years old) were more inclined to take a COVID-19 vaccine.[4][5]

Disease susceptibility and severity

The RCCE CS data compilation revealed few differences in vaccine acceptance rates in relation to disease susceptibility. This contrasts with other studies which have highlighted risk perception as a critical factor influencing vaccine acceptance. For example, recent data from 19 African Member States showed that 22 per cent of respondents who did not intend to get vaccinated indicated that they did not feel they were at risk.[6] Study findings from Kuwait found increasing levels of vaccine acceptance corresponded to increased levels of disease susceptibility.[4] This is similar to findings from Portugal which suggested that low or non-existent perceived risk of getting infected with COVID-19 (or developing severe disease following the infection) resulted in lower rates of vaccine acceptance.[7]

Findings from a global survey on vaccine acceptance also observed that people who had contracted

Vaccine acceptance among pregnant women and mothers of young children

Data from 16 countries[iii] collected from pregnant women and mothers of young children in October and November 2020, found that vaccine acceptance rates were usually related to concerns about the safety of COVID-19 vaccines. Other important variables associated with higher levels of vaccine acceptance among pregnant women and mothers of young children were: the perceived importance of childhood vaccinations; trust in health science in general; satisfaction with public health authorities handling of the pandemic at national level; and risk perceptions related to COVID-19. The main reasons for pregnant women not accepting COVID-19 vaccination during pregnancy (even if vaccines were declared safe and free) ranged from concerns about harmful side effects for their babies (66 per cent) to concerns that the approval had been rushed for political reasons (45 per cent). Nearly half of the respondents (49 per cent) also indicated the need to have more evidence on the safety and effectiveness of COVID-19 vaccinations for pregnant women. Factors which influenced mothers of young children in declining the COVID-19 vaccination for their child / children were: concerns about the rushed approval of the vaccine due to political reasons (40 per cent); the need for more evidence in relation to vaccine safety and effectiveness among children (33 per cent); and the belief that the vaccines are not safe and could have harmful side effects (28 per cent). [9]

FINDINGS

Concerns about vaccine safety and efficacy

Several studies revealed that low levels of vaccine acceptance were grounded in concerns relating to vaccine safety and efficacy. For example, survey respondents across five European countries[iv] voiced concerns that the COVID-19 vaccine might be experimental, without sufficient research on potential side effects.[10] Data from Jordan also indicated that higher levels of vaccine acceptance were closely associated with the general perception of vaccine safety: those study participants who stated that vaccines are generally safe were nine times more willing to receive a COVID-19 vaccine compared to those who expressed concerns about vaccine safety.[11] Community feedback data collected across five African countries revealed some additional worries in relation to the side effects of the vaccines with concerns about the vaccines causing infertility, reducing life expectancy or even causing death.[12]

COVID-19, or who had family members who had contracted COVID-19, were more inclined to accept a vaccine.[8]

Vaccine uptake

According to the RCCE CS data compilation, higher morbidity and mortality rates did not appear to influence vaccine acceptance rates. However, the data suggests that an increased number of people being vaccinated against COVID-19 could be associated with increased levels of vaccine acceptance. This reflects some of the existing research which suggests that those with initial lower levels of vaccine acceptance might be more inclined to receive a COVID-19 vaccine once more people in the population have been vaccinated. [9]

Trust in institutions

At the global level, the RCCE CS data compilation observed a significant association between levels of trust in public authorities and partners leading the COVID-19 response upon an individual's acceptance of COVID-19 vaccination. A similar trend can be found in Europe where there is a significant positive correlation between trust in institutions and vaccine acceptance. The data equally shows positive, although moderate, association between trust and vaccine intent in Asia and Africa. This is consistent with a recent global level survey across 15 countries revealing a strong association between trust in government and vaccine acceptance – particularly in Asian countries.[8]

Data from Africa also highlighted that respondents' trust and positive attitudes towards health care bodies and authorities resulted in higher vaccine acceptance rates.[13] South African data equally found that low levels of satisfaction with - and trust in - political leadership has an adverse effect upon vaccine acceptance rates.[14] In MENA and the Americas, the available data did not indicate a strong association between vaccine acceptance and people's trust in the government or partners leading the pandemic response.

[iii] United States (US), India, Brazil, Russia, Spain, Argentina, Colombia, UK, Mexico, Peru, South Africa, Italy, Chile and the Philippines. Australia and New Zealand were included as reference given lower incidence of COVID-19.

[iv] Denmark, France, Germany, Italy, Portugal, the Netherlands, UK

Information and knowledge gaps

The currently available data does not yet allow for a more in-depth analysis of vaccine acceptance in relation to information and knowledge. However, several studies have found that many concerns in relation to vaccine safety and efficacy are grounded in a lack of information and knowledge about the vaccine. For example, study findings from Portugal reported higher levels of vaccine hesitancy among survey participants who perceived the information provided by health authorities as 'inconsistent and contradictory' compared to those who found the information 'clear and understandable'.[7] Recent research conducted across several African countries observed that 31 per cent of those who were vaccine hesitant felt they did not have sufficient information to make a decision.[6]

This is consistent with findings from a perception survey with Red Cross volunteers from 18 national societies in the Americas revealed that lacking information in relation to vaccine safety and efficacy was the main reason for low levels of vaccine acceptance.[15] Community feedback data from Africa reported that respondents questioned: whether the vaccine would be mandatory; when it would be accessible; why it was only available in some countries but not in others; and whether it was possible to combine different COVID-19 vaccines into one vaccine.[12] Evidence from South Africa identified additional information and knowledge gaps in relation to the vaccines, the trials and the vaccine rollout programme.[16]

While transparent communication of COVID-19 vaccine risks and benefits is critical, recent experimental studies in the UK showed that written or purely visual messages had limited effects on vaccine hesitancy and uptake. They also showed that vaccine hesitancy is not only a result of a lack of evidence to make an informed decision but also that clear and transparent communication positively affected people's feeling of being informed when making the decision of whether to take the vaccine and that accurate information sharing may increase trust in the longer term.[22]

FINDINGS

Vaccine acceptance among health care workers

Global COVID-19 acceptance rates have steadily increased among health care workers (HCW) (40 per cent in March 2020 vs. 79 per cent in February 2021). There are, however, substantial variations across different countries. For example, the data compiled by the RCCE CS revealed that HCW in Egypt (44 per cent), France (56 per cent) and Nigeria (58 per cent) seemed to be less inclined to accept a COVID-19 vaccine. Higher levels of vaccine acceptance were found among HCW in Vietnam (83 per cent), Brazil (85 per cent) and Italy (91 per cent) (Figure 3).

Additional research among HCW indicated that vaccine hesitancy or reluctance could be associated with concerns about vaccine safety and efficacy and the fear of related side effects. For example, findings from a HCW study in Canada revealed that major factors for vaccine refusal were concerns about the novelty of the vaccine; the preference to let other people receive the vaccine first, lack of available information about the vaccine; and insufficient time for decision-making. Among vaccine 'firm refusers' the lack of trust in pharmaceutical companies and experts was mentioned as a major reason to reject a COVID-19 vaccine.[17] Recent research among HCW in Colombia identified that the confidence in vaccine efficacy as well as in science and research in general could become an important factor for vaccine acceptance.[18] Data from a HCW study in France and Saudi Arabia also show that HCW who have previously received an influenza vaccine were more willing to take a COVID-19 vaccine.[19][20] Fear of becoming infected with COVID-19, being a frontline healthcare worker, being involved in the care of COVID-19 patients or working in a hospital ward were also found to positively influence COVID-19 vaccine acceptance rates.[21] Socio-demographic factors should also be considered in relation to vaccine acceptance among HCW: study findings from France showed increased level of vaccine acceptance among male HCW compared to female HCW and physicians compared to those who were working as a nurse and/or a nurse assistant.[19]

Figure 3. Vaccine acceptance among HCW in February 2021 (WHO/MIT)
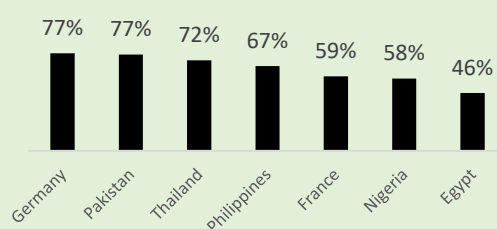
Key considerations

These considerations are intended for those who are designing and delivering COVID-19 risk communication and community engagement (RCCE) and those who are engaged in collecting, analysing and using data for designing and delivering COVID-19 vaccine programmes. They also highlight and reflect on similar issues identified by the recent SSHAP data synthesis of COVID-19 vaccine perception data in Africa.[23]

- This analysis draws upon a range of data sources including a substantial number of country-level studies. Considering that data is most useful at the local level, more effort and investment should be made to support countries in collecting, analysing, and using local level data.

- People's feedback, questions and concerns should be continuously assessed, analysed, and used to adapt risk communication strategies. Timely sharing of accurate and fact-based information about the vaccine (e.g. efficacy, safety, side effects, duration of immunity etc) and the vaccination process (e.g. location of vaccination centres, registration, certification etc.) is critical to instil confidence and encourage people to get (recurrently) vaccinated. This information should be accessible to different population groups and tailored to their information needs and knowledge gaps.

- Access issues interconnected with vaccine nationalism and broader geopolitics shape local narratives and perceptions around the vaccine. Recent feedback from RCCE partners also highlights that structural factors (e.g. availability of vaccine doses or having the money to travel to vaccination centres) are becoming growing concerns for people in low- and middle-income countries. COVID-19 response decision-makers should be informed about these local narratives, perceptions, and concerns; this would facilitate to take this information into account and address potential barriers to vaccine uptake.

- Most of the globally accessible data used quantitative methods and remote-based data collection and there is little data and qualitative research on the underlying factors of vaccine acceptance. More triangulation with offline and qualitative data would provide contextual nuances and an in-depth understanding of the socio-behavioural factors influencing vaccine acceptance and uptake across a diverse range of population groups. This is important given limited internet accessibility and/or digital illiteracy, and the importance of qualitative research.

- Working and engaging with community-level organisations, as well as health care workers and community volunteers, could effectively increase confidence in the vaccine and plan and deliver the COVID-19 vaccination rollout.

- Low levels of vaccine acceptance and rates among health care workers needs to be assessed and addressed. It is also important to understand the socio-behavioural influences upon vaccine acceptance and uptake among different HCW categories (doctors, nurses, community health care workers) and how HCW perceptions of COVID-19 vaccines differ throughout low- and middle-income countries.

- Vaccine decisions are multifactorial, and perceptions change over time, especially given the dynamic nature of the pandemic, the information relating to it and the response to it. Data collection and research is therefore most useful when conducted repeatedly and regularly.

- The COVID-19 response has been politicised in many countries. Understanding the interplay between COVID-19 vaccine acceptance and uptake with political attitudes, historical inequalities and longstanding mistrust in institutions is critical for country level responses.

- To address vaccine hesitancy, RCCE approaches need to go beyond broad messaging and foster dialogue, strengthening the role of community engagement, for example, by working with trusted community leaders and influencers. Reducing structural barriers such as: the overall access to vaccines; the registration for a COVID-19 vaccination; and/or the location of vaccination sites will be equally important.

- Most of the assessed data and surveys used hypothetical questions in relation to vaccine acceptance (for example, *'Would you get vaccinated once a vaccine is available and recommended'*).[24] Depending on the vaccine rollout and reach, especially in low and middle-income contexts, it is important to consider adapting such questions will need to be adapted to measure the actual take-up of the COVID-19 vaccines.

- There are significant gaps in relation to data from some population groups including the most

vulnerable and marginalised people. Standardised data collection processes - factoring in issues in relation to digital literacy, language, and socio-cultural diversity - could provide a range of country or population specific examples that would inform the design and delivery of vaccine programmes. The WHO guidebook on the collection, analysis and use of socio-behavioural data to understand people's intention to receive a COVID-19 vaccine and the question bank developed by the RCCE CS provide some useful guidance for those who gather and use data on the behavioural and social drivers of vaccination. [25][26][27]

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About the Collective Service

The Collective Service for Risk Communication and Community Engagement is a partnership between the IFRC, UNICEF and WHO, which leverages active support from the Global Outbreak Alert and Response Network (GOARN), and key stakeholders from the public health and humanitarian sectors.

See www.rcce-collective.net for more information.

Credit Photos

IFRC (cover page, page 7).

Disclaimer:

The COVID-19 Behavioural Change Dashboard draws on data characterised by a robust methodology and are considered reliable. However, due to the nature of the collected data (e.g. self-reporting perception and sentiment), the accuracy of the reported data may significantly vary across the different studies.

This disclaimer applies to both isolated and aggregate use of the available data. Data are continuously compiled and processed which might result into periodic changes of the information presented in the dashboard. Data can also quickly become out-of-date. If you find any errors or omissions, please contact the Collective Service.

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