

EVIDENCE REVIEW: COVID-19 VACCINE ACCEPTANCE BY KEY INFLUENCERS IN THE MENA REGION - TEACHERS AND HEALTHWORKERS

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As COVID-19 vaccines have been deployed and scaled, concerns about vaccine acceptance have emerged. Effective management of the virus requires that communities everywhere buy into the public health measures designed to protect them, including vaccines. Low acceptance presents a serious challenge for achieving sufficient coverage to reduce circulation of the virus and the risk of new variants emerging.^{1,2,3} Surveys conducted early in the pandemic showed that the Middle East region had one of the lowest COVID-19 vaccine acceptance rates globally.³ The low acceptance is driven by specific factors in the region and its different countries and populations; these factors need to be taken into account when formulating policy, programmes and interventions.

This review synthesises evidence on vaccine acceptance among two key groups in the Middle East and North Africa (MENA) region: teachers and health workers. It draws from academic studies most of which were cross-sectional studies, largely conducted between February 2020 and June 2021, and grey literature reports, including social listening reports. This review is intended to inform strategies for risk communications and community engagement (RCCE) relating to COVID-19 vaccine uptake, with the aim of boosting confidence in and acceptance of the vaccines among these groups across the region. It is part of the Social Science in Humanitarian Action Platform (SSHAP) [series](#) on social science considerations relating to COVID-19 vaccines and was developed for SSHAP by Anthrologica (Nadia Butler and Soha Karam) at the request of the UNICEF MENA Regional Office. It was reviewed by Rose Aynsley (WHO) Amaya Gillespie (UNICEF) and Olivia Tulloch (Anthrologica). The evidence review is the responsibility of SSHAP.

SUMMARY CONSIDERATIONS

Teachers

- **Collect both quantitative and qualitative data to better understand teachers' level of acceptance and barriers to uptake.** There are very limited data on this group's attitudes and intentions regarding the COVID-19 vaccine. Data are also needed about the specific concerns of female teachers, whose acceptance appears lower.
- **Include teachers among the priority groups in national plans for vaccine roll-out,** given their role as important influencers.
- **In engagement with teachers, emphasise evidence about the safety and efficacy of the vaccine** and the safe return to schools and highlight the benefits of a return to normal life that the vaccine will bring.

Health workers

- **Fill important data gaps, particularly qualitative, relating to health workers across the region.** Not enough is known about their degree of trust in policy and vaccination campaigns; the relationship between trust and vaccine acceptance; their communication preferences and trusted channels, sources and influences; and social norms and other social factors that are likely to influence vaccine acceptance.
- **Build trust in health authorities and vaccine producers among health workers.** Engage trusted advisors and influencers of vaccination decisions, such as health experts and community leaders, to ensure that accurate, up-to-date information about vaccines is shared with health workers via their preferred channels.

- **Provide health workers with access to adequate and reliable information about vaccine safety and efficacy and the available vaccine types in their country.** Health workers across the region remain concerned about the safety and efficacy of vaccines. Information needs to be consistently provided by trusted and respected sources. This can improve confidence.
- **Pay particular attention to groups of health workers that are less accepting, such as nurses.** This includes considering differences in attitudes between the public and private health sectors. Efforts should specifically target female health workers through appropriate channels and influencers, and should address their specific concerns (such as fertility myths linked to COVID-19 vaccinations) and build their confidence.

Cross-cutting data considerations

- **Disaggregate data relating to these two key groups.** It is important not to fall into the trap of conceptualising health workers or teachers as homogeneous groups. These groups consist of members of different professions and occupations, with a wide range of education or training levels and very different responsibilities and risk factors.
- **Collect data relating to social norms** and other social drivers that might influence vaccine acceptance among both groups, including social pressure, networks of influential individuals, collective self-efficacy, social cohesion, decision-making patterns, moral norms and religion.
- **In monitoring, triangulate different types of data collection:** quantitative (social group-specific surveys), qualitative (rapid, formative, and in-depth social science research), community feedback, and dis- and misinformation monitoring.
- **Focus monitoring activities on two-way communication mechanisms in order to address and engage with misinformation.** This should not be a static or standalone activity, but should instead be embedded as part of broader programmatic and operational activities, especially given how often perceptions of COVID-19 vaccines may change.
- Guidance is **available** on gathering and using data to understand vaccination intentions. **Adapt data collection tools to different settings**, and use different methods to contribute to local, regional and global tracking trends. Ideally, base these tools on shared core indicators and shared principles for data collection using those indicators.
- In general, **men in the MENA region are more accepting of the COVID-19 vaccine than women.** Conduct analyses to understand why this is so, and what different barriers women face to vaccine uptake.
- Gather more data on the attitudes of older health workers and teachers, and specifically engage with these priority groups.

Considerations for RCCE

- **Focus RCCE efforts on teachers and health workers. If these groups are expected to be champions for vaccination, they themselves need to accept the vaccine.** Reasons for their hesitance need to be understood in order to address them effectively.
- **Engage appropriate influencers** to make vaccine acceptance and uptake more visible where it is occurring and to magnify positive social norms.
- **Consider engaging trusted actors, such as local healthcare providers or peers,** in vaccine administration. It is important, however, to consider gender dynamics that might affect acceptance.
- Vaccine supply remains a significant issue in some countries in the region. **At time of publication, available data concerned intent to vaccinate rather than practice.** Results may change significantly when vaccines become more obviously available.

- **Identify and harness preferred approaches for engagement and continuous communication.** Continue to use these approaches to provide the latest information to teachers and health workers so they can confidently advocate for vaccination in their networks.
- **Prioritise and emphasise accurate, clear and up-to-date information about the following topics** in communications with teachers and health workers: vaccine safety and efficacy; vaccine types and the process of vaccine development and approvals; risks applicable to more complacent populations; social benefits of vaccination, such as being able to return to normal life, protecting loved ones and community, or reducing the social and economic cost of the disease on a country; the number of people, and especially peers, being vaccinated.
- **Follow accepted principles of good risk communications and community engagement.** For example, take into consideration language, need for visual imagery, trusted platforms and engaging strategies (story-telling, social media posts, memes, etc. along with peer support networks and local champions). Empower people with information and resources to self-identify how they want to engage and receive information.
- **Use training-based and workshop settings to encourage discussion.** These may be a good way to share evidence-based information with professionals. Health partners can support scientific discussion and can use this opportunity to address misinformation and rumours. These sessions can be used to discuss and provide strategies for teachers and health workers on how to communicate and encourage with others about vaccine uptake.
- Where one does not already exist, consider setting up a **network, coalition or forum through which teachers or health workers can communicate**, as a safe place where information can be shared, personal concerns raised and addressed anonymously, feedback collected, professional functions clarified and effective strategies co-designed.
- **Publicise and amplify positive vaccination norms.** If people, and in particular other teachers and health workers, are starting to get vaccinated, make sure the target groups know about it.
- **Engage peers and experts to share accurate information.** Teachers and health workers appear to have greater trust in information received from colleagues, experts or scientists than they do in information they get from celebrities, friends or family.
- Target communications according to age. Although the effect of age on COVID-19 vaccine acceptance did not seem to follow a consistent pattern based across the region, age can still be a predictor for acceptance levels on a national or local level. Importantly different age groups also tend to have different communication preferences.

BACKGROUND

This review draws on available evidence to highlight the factors driving vaccine acceptance in the MENA region, and specifically among teachers and health workers. Teachers and health workers have the potential to greatly influence vaccine acceptance among their communities and the broader population. However, in the case of health workers, at least, the acceptance rate is alarmingly low in certain contexts. The COVID-19 pandemic has expanded health workers' role: they are now expected to be influencers and to model COVID-19 prevention behaviour. But if health workers are to be champions for COVID-19 vaccination, as hoped, the first step is for them to accept the vaccine themselves and receive it as it becomes available to them. Acceptance is highly variable even within groups and is not static: it changes constantly, and in some cases rapidly, according to events occurring at any given time or as new information becomes available. It is important to unpack the factors and reasons that drive vaccine acceptance levels and formulate strategies for increasing acceptance among hesitant groups.

Barriers and enablers to vaccine acceptance can be conceptualised at three levels: environmental (policy, systems and structures including vaccine availability and access); social (social and moral norms, cultural influences and practices); and individual (sociodemographic). This review also gives

specific attention to understanding gender as a cross-cutting factor associated with vaccine acceptance in the broader population in the region, as well as among the two target groups of this review. The review does not address issues related to the general population's trust in health workers, nor the public's fear of catching COVID-19 from frontline workers and associated stigma. Where they exist, negative public attitudes have implications for frontline groups' ability to positively influence others with regard to vaccine uptake.

The vaccine roll-out dates, priority groups and percentage of people in the general population vaccinated against COVID-19 as of September 2021 in the MENA region are summarized in Table 1.

Table 1. Vaccine roll-out dates, percentage of people in the general population vaccinated against COVID-19 as of September 2021 in the MENA region and acceptance rates of health workers

Country	Date vaccination programme launched ⁴	Percentage of adults vaccinated ⁵ (Sept. 2021) ^a	Health worker vaccine acceptance ^{67,b}
United Arab Emirates	December 14, 2020	88%	18%
Qatar	December 23, 2020	80%	34%
Bahrain	November 4, 2020	66%	N/A
Saudi Arabia	January 6, 2021	64%	28%
Morocco	January 28, 2021	52%	16%
Oman	December 29, 2020	50%	23%
Tunisia	March 13, 2021	37%	13%
Jordan	January 13, 2021	34%	22%
Kuwait	December 28, 2020	34%	51%
Iran	February 9, 2021	23%	N/A
Lebanon	February 14, 2021	21%	27% - 83% ⁶⁸
Palestine	February 2, 2021	18%	20%
Libya	April 11, 2021	15%	26% - 80% ⁶²
Algeria	January 30, 2021	11%	9% - 20% ⁵⁶
Egypt	January 24, 2021	6.6%	11%
Djibouti	March 15, 2021	3.6%	N/A
Iraq	March 2, 2021	2%	22%
Sudan	March 9, 2021	1.4%	57% ⁵⁶
Syria	April 1, 2021	1.3%	19% - 40% ⁵⁷
Yemen	April 20, 2021	0.98%	20%

Notes. ^a At least one dose administered. ^b These data are indicative of the range of acceptance levels. They are extracted from studies in 2021 with varying methodologies and sample sizes; they come from a large-scale study with healthcare workers by Qunabi et al.,⁶⁷ unless otherwise specified or unless than two data set were available for the country: Zein et al.,⁶⁸ Elhadi et al.,⁶² Kacimi et al.,⁵⁶ and Mohamad et al.⁵⁷

KEY THEMES AFFECTING VACCINE ACCEPTANCE

A variety of terms and measurements are used to discuss and gauge populations' levels of confidence in vaccines, among them hesitancy, acceptance, confidence, reluctance and willingness. 'Vaccine hesitancy' has been defined by WHO as 'a delay in acceptance or refusal of vaccines despite the availability of vaccination services'⁶ and is influenced by a number of factors, including issues of confidence (trust for the vaccine, provider, manufacturer or those advocating vaccination), complacency (perception of the need for a vaccine), and convenience (access).⁷ 'Vaccine confidence' has been defined as the belief that vaccination, and the providers and other actors behind it, serve the public's best health interests.^{2,8} Populations are not divided neatly into pro- and anti-vaccine groups. Instead, vaccine hesitancy and confidence is a continuum ranging from complete acceptance or confidence to complete refusal.^{7,9,10} Throughout this brief, the term 'vaccine acceptance' is used to refer to the willingness and intention to receive a vaccine if available. We avoid the term 'hesitancy' as much as possible because of the inadvertent negative impacts that can

result from framing the discussion from a negative perspective: the discussion should not be about what we want to avoid, but what we want to achieve.

The drivers and influencers of vaccine acceptance are complex and context specific. Social science research shows that vaccine perceptions are influenced by much more than information and education; they are shaped by complex socio-political contexts.⁹ Consistent and scientifically accurate information can influence acceptance to some extent, but improving vaccine confidence may require efforts to increase public trust in vaccine safety and effectiveness and in health systems and government more broadly.^{7,8} It is essential to try to understand the factors that drive acceptance in any given context: individual, social and environmental. It is also important to note, however, that vaccine availability and access are major limiting factors in uptake in the MENA region.

FACTORS RELEVANT TO VACCINE ACCEPTANCE IN THE REGION

What we know about COVID-19 vaccine acceptance rates in MENA

When COVID-19 vaccines became available to the public at the end of 2020, access to sufficient quantities of these vaccines across the world was highlighted as one of the main factors hindering vaccination. Global vaccination efforts have been obstructed by economic and logistical challenges, further exacerbated by factors affecting vaccine acceptance among the public. These challenges are also being faced in the MENA region. As of August 2021, only about 12% of the total population had received at least one dose of the vaccine.¹¹ The United Arab Emirates (UAE) (88%), Qatar (80%), Bahrain (66%), Saudi Arabia (64%), Morocco (52%), and Oman (50%) stand on top of the list in terms of share of people vaccinated against COVID-19 in the MENA region (as of September 7th, 2021), but these are exceptions and the low- and middle-income countries are still trailing well behind.^{10,11} There are a number of reasons for this, including limitations on the capacity of COVAX to supply vaccines, vaccination concerns from the public, and inability of many countries in the region to afford the vaccines.

Vaccine acceptance data (between March and May 2021) show that 65% of individuals across the region say they would get vaccinated once a vaccine is available and recommended. The lowest rates were observed in Yemen (47%) and Algeria (42%) and the highest observed in Qatar (84%) and UAE (75%).¹³ The vaccine acceptance rates in MENA appear to be slightly higher than in Europe (63%) and in West and Central Africa (62%), with the highest rates observed in the Asia Pacific region (79%).

Given the broad range of contexts and population groups in the MENA region, it is challenging to identify pan-regional factors influencing vaccine acceptance; however, certain recurring themes and specific examples are outlined below.

What we know about the environmental drivers for vaccine uptake in MENA

The environmental drivers that influence vaccine uptake in the MENA region largely relate to the policy environment in terms of availability, accessibility and affordability of the COVID-19 vaccines. In terms of acceptance, the main factors relate to the governing environment, especially the level of trust in government and health institutions, and to the communication environment.

AVAILABILITY, ACCESSIBILITY AND AFFORDABILITY OF COVID-19 VACCINES

In some settings, the availability and accessibility of vaccines^{14,15} and their affordability (notably in Iran)¹⁶ were found to be barriers to vaccine uptake. A study conducted in Iran revealed that a majority of participants (67%) believed the country should offer the vaccine to its population for free.¹⁷ Vaccine availability and access in settings affected by conflict in the MENA region (such as Syria¹⁸) were also found to be among the barriers to vaccine acceptance. The perception of vaccine inaccessibility or access challenges were found to be discouraging already hesitant people from getting vaccinated.¹⁹

TRUST IN GOVERNMENT AND HEALTH INSTITUTIONS

Globally, the MENA region has the lowest percentage of individuals who trust authorities and partners leading the COVID-19 response (36%).¹³ These low rates, especially in conflict-affected settings, might negatively affect the vaccine coverage needed to reach herd immunity. A multinational study implemented in conflict-affected settings (Kenya, Nigeria, Palestine, Tanzania, Uganda and Yemen) revealed a relatively low level of confidence in government pandemic response efforts and vaccine roll-out across the six countries, potentially undermining vaccine acceptance.²⁰

Based on the available data, it appears that low levels of trust in government and/or health institutions correlate with low levels of vaccine acceptance. For instance, in Jordan, a low level of trust in the pharmaceutical industry and health institutions²¹ and in the government's motives or capabilities²² were reported to be among the biggest concerns of respondents. A similar pattern was observed in Sudan²³, Tunisia²⁴ and Lebanon.²⁵ The gulf countries have displayed high levels of government trust and confidence, correlating with high levels of vaccine acceptance. An Arab Barometer survey²⁶ implemented in countries in the MENA region revealed that the top two countries in terms of government trust were Morocco (48%) and Libya (44%). They are also among the top countries in terms of vaccine acceptance (77% and 70% respectively).

THE COMMUNICATION ENVIRONMENT

The source of vaccine information also affected willingness to accept the vaccine. Participants in a study in Oman²⁷ claimed to be more likely to take the vaccine if they had heard about it from friends rather than from other sources. The most trusted sources of information about the vaccines were health workers (especially doctors and nurses) in Jordan,²¹ Djibouti²⁸ and Iran;¹⁷ the Ministry of Health and WHO in Morocco²⁹ and Egypt³⁰ respectively; and family, neighbours and friends in Lebanon.³¹ Lack of communication was a contributing factor in some countries -- for example, in Iraq, Egypt, Afghanistan, where there had been limited vaccine communications. This again hampers confidence and contributes to complacency.

Focus group discussion participants in rural Damascus, Syria¹⁸ stated that the circulation of conflicting information about the vaccine is contributing to lower vaccine acceptance. They said that some media outlets encourage vaccine uptake, while others discourage it. In line with this finding, an assessment conducted in Lebanon²⁵ revealed that the profusion of opinions about the vaccine is affecting vaccine acceptance.

What we know about the social drivers for vaccine acceptance in MENA

SOCIAL DRIVERS ARE LIKELY TO INFLUENCE VACCINE ACCEPTANCE.

Data linked to social and cultural norms in the MENA region are limited, and more research is needed to better understand their influence on vaccine acceptance. However, data from other areas indicates that drivers such as social and cultural norms, notions of the body, notions of the disease, immunity and strength, and religion influence how different social groups and communities relate to health interventions such as vaccination. These influences vary widely both across and within countries. For instance, data from across Africa suggest that vaccines may be thought unnecessary for people with strong immune systems; the high number of asymptomatic and mild cases of COVID-19 may reinforce the idea that healthy individuals with strong immune systems do not need the vaccine. People also tend to underestimate the willingness of their friends and peers to be vaccinated, which could drive hesitancy.³²

Stigma and lack of 'decision autonomy' have also been identified as barriers in some contexts. For example, in Morocco,³³ if a vaccine is taken without family consultation, pregnant women are likely to be blamed for harming themselves and their unborn child.

RELIGION

Some studies in the region have examined the correlation between religion/faith and vaccine acceptance. There are few religious groups whose official religious texts explicitly reject immunisation, and one global study³⁴ found that vaccine acceptance was influenced more by

political, cultural, and historical contexts than by religion or faith. A situational analysis from Syria¹⁸ highlighted a social media post stating “The virus will not respect your religion but your immune system. It will not fear your dua, it will fear your vaccination.” In contrast, online social listening reports in the region revealed an increase in comments saying that only God, not vaccines, can protect and heal from COVID-19.³⁵

The correlation between religion and vaccine acceptance may be positive or negative. For example, Muslim ethics in the context of COVID-19, and specifically concerns about vaccine composition and development, and the relation of those concerns to vaccine acceptance. Potential concerns include whether a vaccine contains a religiously prohibited item or whether the vaccine’s development adheres to accepted ethical and scientific standards. On the other hand, a study from Morocco³⁷ highlighted the important role of religious leaders in promoting vaccine acceptance, and places of worship such as churches and mosques are being used across the region as vaccination centres.³⁸

What we know about the individual drivers for vaccine acceptance in MENA

Among the individual drivers that appear to influence vaccine acceptance, the perceived risk of infection, concerns about vaccine safety and efficacy, and perception of routine immunisation featured most prominently.

RISK PERCEPTION OF COVID-19 INFECTION AFFECTS INTENTION TO VACCINATE

Several studies showed a correlation between risk perception and intention to vaccinate. A study in Lebanon found that people who perceived COVID-19 as a risk to themselves and their family and relatives showed greater willingness to get vaccinated.²⁵ A cross-sectional study conducted in Iran³⁹ found that the high perceived benefits of vaccination and low safety concerns were associated with three times or higher odds of positive COVID-19 vaccination intent. Similarly, findings from a cross-sectional study in Palestine⁴⁰ noted that the higher mortality rate from COVID-19 compared to that from influenza, along with the social and economic impacts of the pandemic, have led to greater acceptance. A literature analysis⁴¹ conducted in MENA revealed that lack of perceived risk of infection was a barrier to vaccine uptake in Saudi Arabia and Qatar. Similar findings were also reported in studies conducted by the Partnership for Evidence-based Response to COVID-19 (PERC) in Morocco,²⁹ Egypt,³⁰ Sudan,²³ and Tunisia,²⁴ where lower risk perception was reported to be one of the main reasons for lower acceptance.

PERCEPTION OF VACCINE SAFETY

Insufficient information regarding vaccine safety is affecting vaccine uptake or causing some people to delay vaccination until they are confident it is safe.^{22,25} Concerns related to vaccine safety were reported across the region. There were some variations between countries, but generally a clear correlation was found between belief in the vaccine’s safety and vaccine acceptance. For instance, 60% of participants in an Oman study²⁷ (December 2020) stated that they were not willing to get the vaccine due to uncertainty about its safety. These reactions may be due in part to the fact that vaccine roll-out was only initiated in Oman on December 29, 2020, and thus limited information was available as of the study date. Additional research should be conducted to study the relationship between vaccine roll-out and perceptions of vaccine safety. Jordanians^{21,22} were also worried about the long-term side effects of the vaccine, which hindered vaccine acceptance. Fear that the vaccines have not been adequately tested were also reported as a barrier in Egypt.³⁰ Similar patterns were observed in Djibouti,²⁸ Syria,¹⁸ Saudi Arabia, Morocco,⁴¹ Qatar,⁴¹ Lebanon³¹ and Sudan.⁴² There were no available data on whether vaccine safety perceptions were affected by vaccine brands and types.

PERCEPTION OF VACCINE EFFICACY

Concerns about vaccine efficacy were also reported across the region. In a study in Oman,²⁷ doubts about the efficacy of the vaccine were highlighted as the main driver of participants’ concerns about the vaccine. In Lebanon,²⁵ belief in the efficacy of the vaccine was associated with higher vaccine acceptance and concerns about vaccination were linked to the understanding that it has taken years

for similar vaccines to establish their efficacy and side effects. In Iran³⁹ and Qatar,⁴³ the intention to be vaccinated was higher among those with greater belief in the vaccines' efficacy.

A study among medical professors and researchers in Iran¹⁷ found that attitudes towards COVID-19 vaccination were significantly associated with participants' gender and level of education: females and people with higher degrees agreed less with the effectiveness of the vaccine compared with males and those with diplomas and bachelor degrees.

COVID-19 variants also affected vaccine acceptance. Social listening reports from the MENA region have highlighted expressions of concern about whether the current vaccines are effective against the Delta strain, which was prevalent at the time.⁴⁴

PERCEPTION OF ROUTINE IMMUNISATION

There is little information regarding whether and how attitudes towards other immunisations (e.g. routine childhood immunisations and adult flu vaccination) may influence COVID-19 vaccine uptake. However, some recent studies indicate that belief in the importance of other adult immunisations may be positively associated with COVID-19 vaccine acceptance. One study in Qatar⁴³ revealed that participants who believed it was important to take the annual influenza vaccination were more likely to get vaccinated against COVID-19. A situational analysis of Syria¹⁸ suggested that routine immunisation might be a strong predictor of COVID-19 vaccine acceptance. In Oman,²⁷ trust in the national immunisation plan was positively associated with COVID-19 vaccine acceptance.

It is important to recognise that research has shown generally low rates of influenza vaccine uptake across the MENA region, including among health professionals.^{14,16,45} Qatar is an exception, where health professionals had the highest rates of influenza vaccine uptake following a vaccination campaign. This underscores the importance of vaccination campaigns and other communication strategies in promoting vaccination acceptance and uptake.

Most countries had not yet rolled out COVID-19 vaccination for children at time of publication. However, there was some evidence relating to vaccinating children against COVID-19. A study in Qatar⁴³ among the education sector population and one in Iran¹⁷ among professors and researchers at medical sciences universities revealed that 46% and 44% of respondents would not vaccinate their children respectively, linking it to concerns regarding the safety of the vaccine. On the other hand, another national level cross-sectional survey in Iran⁴⁸ revealed that 74% of respondents would accept an approved vaccine for their children. There is evidence of low uptake of routine childhood vaccination; for example, studies in Iraq⁴⁶ and Sudan⁴⁷ showed immunisation rates of about 50%. This may affect acceptance of the COVID-19 vaccine.

Research to better understand perceptions of routine childhood and adult influenza immunisations and the extent to which confidence in these immunisations influence COVID-19 vaccine acceptance would be valuable.

KNOWLEDGE AND AWARENESS

There is evidence that knowledge and awareness about COVID-19, its symptoms, and modes of transmission and about the vaccines are strongly associated with an intent to get vaccinated. One cross-sectional study in Oman²⁷ that found that individuals with greater knowledge about COVID-19 had higher vaccine acceptance rates. In Jordan,⁴⁹ knowledge about the COVID-19 vaccines was similarly associated with willingness to be vaccinated in (52% of those who read a scientific article were willing to be vaccinated, compared to 24% those who did not).

As a corollary, lack of knowledge about the vaccine was one of the main reasons individuals in Djibouti,²⁸ Egypt,³⁰ Morocco and Libya,⁴¹ Lebanon,^{50,51} Sudan²³ and Tunisia²⁴ said they did not want to get vaccinated. Some respondents from Saudi Arabia⁵² and Lebanon³¹ did not yet know about the COVID-19 vaccines; this might be attributed to vaccines having not been approved or rolled-out at the time of the data collection. Studies in Lebanon⁵¹ and one in Sudan⁴² revealed that some people still do not believe in the existence COVID-19. On the other hand, in Qatar, the cross-sectional study among university students and employees found no association between willingness to vaccinate and coronavirus/vaccine related knowledge.⁴³

The online social listening reports in the MENA Region on COVID-19⁵³ show that vaccination usually remained the number one topic covered since December 2020. The major discussions at first related to concerns about the safety and effectiveness of the AstraZeneca vaccine; these concerns appeared to be leading to lower acceptance rates. Later, vaccine hesitancy and rumours and delays in initiating vaccination campaigns became key topics of conversation.

A World Bank study implemented in Jordan²¹ revealed that willingness to get vaccinated was not associated with the type of vaccines, while a multicountry study⁵⁴ conducted in Saudi Arabia, Lebanon, Iraq and Jordan showed that 50% of vaccine acceptors would prefer American vaccines and especially Pfizer-BioNTech (45%).

GENDER

Gender was strongly associated with vaccine acceptance across the region, with men more likely than women to accept a COVID-19 vaccine.^{21,26,27,43,54–58} Men frequently referred to the increased severity of the disease among men and its impact on their ability to generate income, which may explain the gender disparity. The only exceptions were Morocco, where 82% of women said they were willing to be vaccinated and Lebanon, where the sexes were almost evenly split.²⁶ In Jordan, women were materially less likely than men to accept being vaccinated at the end of 2020 (35% to 53%), but by March-April 2021 the acceptance rates were roughly equal (77% of men willing vs. 74% of women).²² Statistics, by gender, on vaccination rates as of July 2021 in Djibouti, Egypt, Iran, Iraq, Lebanon, Qatar, Saudi Arabia, Syria, and Yemen show that vaccination is overall higher among men than women except in Iran (49% male, 51% female) and Lebanon (47% male, 53% female).⁵⁹

Lower vaccine acceptance among women in the MENA region could be attributed to concerns that the vaccines may be linked to infertility and menstrual disorders.⁴⁴ In Saudi Arabia, for example, rumours circulated associating infertility specifically with the Pfizer-BioNTech vaccine.⁶⁰ Despite authorities' efforts to debunk these rumours, they seem to have spread across the region.⁴⁴ The impact of this incorrect information is not well understood and there may be other factors affecting women's uptake in the region, such as autonomy to choose not to be vaccinated and access barriers.

AGE

The effect of age on COVID-19 vaccine acceptance in the available data did not follow a specific pattern. Some studies revealed a higher vaccine acceptance among younger cohorts (under 65 years old), as in Djibouti²⁸ and Tunisia,²⁴ while others found that vaccine acceptance increased with age (Jordan,²² Qatar⁴³ and Iraq⁶¹). More nuanced local data is needed to understand the underlying reasons for these differences.

OTHER SOCIODEMOGRAPHIC FACTORS

Evidence of a relationship between the level of education and COVID-19 vaccine acceptance was inconsistent. Higher education did not correlate with a higher likelihood to get vaccinated in some countries (Morocco, Libya and Iraq) while in others it did (Lebanon, Jordan and Tunisia).²⁶ A significant correlation was also found in Qatar: postgraduate students were more willing to take the vaccine than lower-level students.⁴³

Some studies also looked at income and socioeconomic status and found varying levels of correlation with willingness to be vaccinated. Having a high monthly income or high socio-economic status was considered a predictor for vaccine acceptance in studies implemented in Jordan,²² Iran,⁴¹ Saudi Arabia, Lebanon and Iraq,⁵⁴ while the difference was not statistically significant in a study in Libya.⁶²

COVID-19 VACCINE ACCEPTANCE AMONG TEACHERS IN MENA

What we know about COVID-19 vaccine acceptance rates among teachers in MENA

Despite their frontline position in society and their capacity to cast a wide net of influence, teachers had largely been overlooked in the research on COVID-19 vaccine acceptance. There are very limited data on the behaviour or attitudes of this group with regard to the COVID-19 vaccine in the MENA region. A study conducted by WHO and UNICEF between June and July 2021 across 23 countries (n=578) in the Eastern Mediterranean and MENA region appeared to be the first such study to focus on teachers' attitudes toward COVID-19 vaccination and other prevention measures across the region.⁶³ It found that 40% of respondents had already received a vaccine (of which 48% had received the first dose only, and 49% two doses). Of those who were not vaccinated, 75% said they planned to take it when available to them, 19% said they would not take it, and the remainder were unsure or did not answer.⁶³ The data were not broken down by country in the report.

A World Bank Group survey in Jordan (May 2021) found that 65% of education workers planned to take the vaccine once it became available, 27% were unsure, and 8% did not plan to take it.²¹ The study found that health and education workers tended to have higher acceptance levels than the general population in these countries.²¹ In Lebanon, a survey found that teachers were increasingly unwilling to return to teaching duties without being vaccinated. In March 2021, 60% of respondents were opposed to the reopening of classes without teacher vaccinations as a precondition, while in April, 85% said they would not return to classes without being vaccinated.⁶⁴ These figures suggest, perhaps surprisingly, that acceptance rates tend to be higher among teachers than among health workers. There does not appear to be a clear correlation with risk perception, with one regional study on teachers finding that 43% of respondents thought they themselves were likely or very likely to get infected with COVID-19, lower than the number that were already or planned to be vaccinated.⁶³ More data are needed to understand the relationship between perceived risk and acceptance.

What we know about the environmental drivers for vaccine uptake and acceptance among teachers in MENA

At the institutional level, a clear factor in teachers' attitudes to vaccination in MENA, as in other regions, is the lack of prioritisation of teachers in the vaccine rollout. As of June 2021, teachers were not included in any priority group for the vaccine in Algeria, Egypt, Yemen or Iran; their priority group was unspecified for Jordan, Oman, Bahrain, Kuwait, Tunisia and certain sub-regions of Iraq; they were specified as priority group 3 or lower in Saudi Arabia, priority group 2 in Lebanon and Syria, and priority group 1 only in Morocco, UAE and Qatar.⁶⁵ In Lebanon, in March 2021, the Education Minister criticised the government for failing, among other things, to provide COVID-19 vaccines to teachers. He called for a strike from online classes, which was answered by secondary teachers, who ceased work in protest against the challenges of remote learning and against a return to schools prior to the vaccination of teachers.⁶⁶ This is indicative of both the lack of prioritisation of teachers, and an increasing demand for the COVID-19 vaccine among teachers. Meanwhile, the regional study referred to above found that the main reason teachers did not plan to get a vaccine once it was available to them was lack of trust in the health system (38%).⁶³

In terms of communication, the regional study found that 39% of teachers trusted 'electronic media' the most to provide information on COVID-19 vaccination and prevention, while 27% chose health workers and health facilities and 19% chose government. Perhaps surprisingly, family and friends and religious and community leaders were not widely trusted, chosen by 7% and 2% respectively. Twenty-nine per cent of teachers trusted their local health care providers very much to provide accurate information on COVID-19 vaccination and prevention, while 33% trusted them moderately. Twenty-five per cent of respondents said they did not know where to go to get a COVID-19 vaccination, although most would prefer to get it in a hospital or health centre (72%).⁶³

What we know about the social and individual drivers for vaccine acceptance among teachers in MENA

Little is known about the barriers or enablers to vaccine acceptance among teachers in MENA at the social or individual levels. However, the Lebanon example cited above may be instructive. Teacher demand for the vaccine was increasing in April, at a time when COVID-19 cases were falling. It is therefore possible that teachers' increasing demand for the vaccine was due to greater trust in its safety and efficacy, combined with a better understanding of the potential benefits of the vaccine - in this case a return to normal work and life.⁶⁴ Among teachers who participated in the regional study, 32% thought a COVID-19 vaccine would be moderately safe for them, while 26% thought it would be very safe. Twenty-six per cent moderately believed the COVID-19 vaccine would cause them to have a serious reaction or side effects, 28% slightly thought this, and 18% did not think there would be any serious reactions. In terms of efficacy, 34% moderately believed the vaccine would be effective, and 23% very much thought so. Sixty-four per cent either very much or moderately thought that getting a COVID-19 vaccine would protect other people in their community from getting COVID-19.⁶³

Gender made little difference among teachers in the regional study when it came to who had been vaccinated already (49% were females and 51% males). Among those who were not vaccinated but wanted to be, the difference was only slightly greater (47% were females and 53% male). However, among those who were undecided or did not want to be vaccinated, there was a clear disparity between men and women. Among those who were undecided, 72% were women and 28% men, and among those who did not want to get vaccinated, 62% were women and 39% men. These gender differences are echoed across different studies, countries and population groups, highlighting a clear need to better understand the specific concerns and barriers applicable to women and to work to address these.

Where do we go from here?

- Collect more data on teachers' attitudes and intentions regarding the COVID-19 vaccine, and on their levels of trust in the vaccination strategies.
- Advocate for prioritisation of this group in national vaccine rollout plans. • Emphasise the safety and efficacy of the vaccine in communications with this group, and the benefits of a return to normal life that the vaccine will bring.
- Learn more about the specific concerns and barriers applicable to female teachers and find ways to address them.
- Make use of women's organisations and other community-based groups to help engage in dialogue with female teachers specifically about their concerns and to share accurate information.
- Engage female teachers as influencers in RCCE campaigns.

COVID-19 VACCINE ACCEPTANCE AMONG HEALTH WORKERS

What we know about COVID-19 vaccine acceptance rates among health workers in MENA

Since COVID-19 vaccines began to be approved around the world, there have been numerous studies of health workers' vaccine intentions and attitudes across the MENA region - almost exclusively quantitative online cross-sectional surveys. These studies paint a picture of relatively low vaccine acceptance rates across the region, although with wide variation between countries. One multicountry study (n=5,708), which included health workers in 21 Arab countries, found an overall vaccine acceptance rate of 27%. This was lower than the acceptance rate of Arab-speaking health workers residing in other countries (33%). Individual country acceptance rates ranged from 8.6% in Algeria to 51% in Kuwait. The study found the lowest acceptance rates among participants from

North African countries (Egypt, Morocco, Tunisia and Algeria).⁶⁷ In other studies, acceptance rates ranged between 83% in Lebanon⁶⁸ and 20% in Algeria.⁵⁶

In some cases, it was found that there was little difference between the acceptance rates of health workers and the general population (Libya,⁶² Syria⁵⁷). In a Jordanian study²¹ and the multicountry study mentioned above,⁶⁷ health workers were found to be more accepting than the general population, while in Iran³⁹ and Algeria⁵⁶ health workers had lower acceptance rates than their counterparts in the general population.

Several surveys asked respondents whether they would recommend the COVID-19 vaccine to family and friends. The majority agreed that they would in Palestine (98%),⁶⁹ Libya (86%)⁶² and Sudan (60%),⁷⁰ while only 42% and 46% agreed in Egypt⁷¹ and Jordan,⁴⁹ respectively. Interestingly, in most studies this figure was higher than the actual acceptance rate, meaning that more people would encourage others to take the vaccine than would choose to take it themselves.

What we know about the environmental drivers for health workers' vaccine acceptance in MENA

Two important influencers of vaccine acceptance rates in MENA relate to the governing environment: trust for the government, the health system, the pandemic response and vaccine manufacturers; and the communication environment. The policy environment, in particular the availability, accessibility and cost of vaccines, also featured in several studies.

TRUST IN GOVERNMENT, THE RESPONSE AND VACCINE PRODUCERS

Studies that assessed issues of trust in the government's health policies and in vaccine producers showed these to be strong predictors of vaccine acceptance, with a pattern discernible across countries. Populations that had a higher level of trust in the government and health system tended to have a higher acceptance rate. In a large multicountry study, 41% of health workers living in Arab countries did not trust the healthcare policies applied in their country, compared to 11.9% of Arabic-speaking health workers residing in non-Arab countries. The same study revealed that women were more likely to report distrust. In Algeria, where acceptance was lowest at 8.6%, distrust was calculated at 48%. In Kuwait, where acceptance was highest at 51%, distrust sat at 9.4%.⁶⁷ In a separate study in Libya, where 80% of health workers were willing to take an effective vaccine, 75% of health workers were either completely or fairly confident in the advice given to them by the government and healthcare providers. The study found that the degree of trust was higher for health workers than for the general population, although acceptance rates between the two groups were comparable.⁶²

In a different study in Lebanon, where the acceptance rate among health workers was 42%, only 44% believed the Lebanese health system was capable of ensuring safe administration of the COVID-19 vaccine.⁵⁰ In Egypt, which has quite low levels of vaccine acceptance, only 12% thought that information about the side effects of the vaccine was discussed openly by the authorities. There was a clear correlation between Egyptian health workers in the study who accepted vaccination and those who thought the information was discussed openly (67% of people who were willing to take the vaccine thought so, as opposed to 15% of those who were not).⁷¹ In Sudan, those who did not accept the vaccine were slightly more likely not to trust the organisations or government supervising the COVID-19 vaccination process (52% vs 48%).⁷⁰ These low levels of trust were mirrored by quite a low acceptance rate (57%).

Similar patterns emerged regarding trust for vaccine producers. In Egypt, 45% of health workers who would accept a vaccine thought vaccine producers were interested primarily in their health, compared to 12% of people who would not accept. Likewise, 53% of acceptors trusted pharmaceutical companies to produce a safe and effective vaccine, as opposed to 5.3% of non-acceptors.⁷¹ In Sudan, lack of trust in pharmaceutical companies producing the vaccines was also found to be a predictor for reduced acceptance. Among acceptors, 42% did not trust the manufacturers, compared to 58% of non-acceptors.⁷⁰ In a multinational study, 44% of health workers responded that "the

vaccine production has been rushed, making me doubt the credibility of the producing company”, although the results were not presented by country. Health workers were less likely than the general population not to trust the companies.⁶⁷

In Libya,⁶² Egypt⁷¹ and Saudi Arabia⁷² respondents believed that the vaccine should be provided for free, with health workers in Egypt concerned about the out-of-pocket costs of the vaccine. Meanwhile, a majority of Palestinian nurses who accepted the vaccine in one study (76%) were willing to pay for it.⁶⁹ Studies in Egypt⁷¹ and Lebanon⁵⁰ mentioned transport to the vaccination site as a potential barrier to uptake, with 46% of Lebanese respondents saying they preferred to receive the vaccine in a primary health care centre near them. In the same study in Lebanon, 15% of respondents mentioned security as a barrier to receiving the vaccine.⁵⁰ Another Lebanese study noted that 45% of health workers who had registered for the vaccine had not completed their registration forms correctly, raising questions about whether the registration system itself may be hindering access.⁵⁸

Where do we go from here?

Gather more data across the region, particularly qualitative data, on health workers’ trust levels and their relationship to acceptance rates.

- Develop specific strategies to build confidence in health authorities and vaccine producers among health workers.
- Pilot test and monitor providing incentives to vaccination (such as coupons for talk time or food) and/or encouraging routine offering of vaccination.

THE COMMUNICATION ENVIRONMENT

Health workers in MENA use a variety of channels to access information about COVID-19 vaccinations. Some studies drew correlations between access to certain information sources and vaccine acceptance. It was also found that perceived lack of information and lower knowledge scores were associated with lower acceptance rates (see Knowledge and Awareness section below). Misinformation was found to be widely circulating and had an effect on vaccine acceptance.

Social media was the most commonly-used communication channel for information about COVID-19 by health workers in Jordan,⁴⁹ and Tunisia,⁷³ and the second or third preferred channel in Egypt,^{71,74} Saudi Arabia⁷⁵ and Lebanon.⁶⁸ Health workers in a study in Jordan were asked to rate the most influential social media tools to encourage vaccination, and the results were short scientific videos (67%), photos of influencers taking the vaccine (38%) and online awareness posters (30%).⁴⁹ Use of social media was significantly associated with lower acceptance rates in Kuwait.⁷⁶

Physicians or other health colleagues were cited as the main source of information for health workers in Egypt (30%),^{74,71} and were also considered important in Jordan⁴⁹ and Kuwait.⁷⁶ Around 54% of health workers in an Egyptian study were advised by their hospital or health centre to accept the vaccine, and those participants had 2.5 higher odds of accepting the vaccine than their counterparts who had not received such advice.⁷¹ In Lebanon, health authorities’ or health facilities’ recommendation to vaccinate by was positively linked to vaccine acceptance and stood out as one of the most important cues for vaccination.⁷⁷ A framing experiment in Lebanon found that health workers responded better to information shared by health peers or experts than by religious leaders or celebrities.⁵⁸ Health workers may contribute to lower vaccine acceptance in some settings. For instance, interactions at the point of service at the vaccination centres with health workers in Gaza increased hesitancy among people willing to get vaccinated (based on discussions with UNICEF MENA C4D team).

Kuwaiti health workers cited scientists and scientific journals as their preferred source of information (40%),⁷⁶ followed by doctors and other health workers (33%). Scientific articles were also commonly read by health workers in Egypt⁷¹ and Tunisia.⁷³ In Jordan, 62% of health workers who read a scientific article were willing to be vaccinated, compared to 31% of those who did not read any scientific articles.⁴⁹ Health workers in Palestine said they would have more confidence in the vaccine

if scientists, leading authorities or other trustworthy individuals ensured its safety and recommended it (79%⁶⁹ and 84%⁷⁸ of those who were reluctant to take the vaccine).

Information from countries' Ministry of Health websites were considered an important source of knowledge on COVID-19 in Egypt (27%),⁷⁴ Tunisia,⁷³ Lebanon⁶⁸ and Saudi Arabia,⁷⁵ although most Saudi health workers preferred the WHO website (51%)⁷⁵ to other channels. When specifically asked about their most trusted source of information, health workers in Lebanon rated the Ministry of Public Health highest (58%).⁵⁸ Health workers who used the US Centers for Disease Control website in Saudi Arabia were 1.5 times more likely to accept the vaccine than those who used other sources of information.⁷⁹

Health workers in Egypt stated that they would not be influenced by celebrities and leaders advocating the COVID-19 vaccine (69%),⁷¹ and in Lebanon, health workers who had been advised by family members to vaccinate were less likely to accept the vaccine.⁷⁷ These are important findings, which should be explored further in other studies.

Anti-vaccination misinformation shared on social media is thought to have contributed to lower acceptance among health workers in Saudi Arabia,⁷² Egypt⁷¹ and Kuwait.⁷⁶ In Kuwait, the belief that COVID-19 was human-made was significantly associated with lower intention to receive the vaccine.⁷⁶ In Libya, 34% of doctors believed that COVID-19 was a man-made virus.⁶² Forty-one per cent of health workers in Lebanon reported that they were receiving a lot of false and negative information about the COVID-19 vaccine, including that the vaccine caused negative side effects, death or a change in human DNA.⁵⁰ A study in Sudan calculated that up to 67% of rumours originated from health providers themselves.⁴² In Jordan, 43% of health workers at a university hospital believed that misinformation shared on social media was true, particularly about vaccine safety, and they also believed that the vaccine was part of secret research. This was, however, less than the percentage of non-medical staff at the university who believed such misinformation (65%).⁴⁹

Where do we go from here?

- More data are needed across the region on health workers' communication preferences and trusted channels, sources and influencers; qualitative data will be important to understand the underlying reasons for low acceptance in the existing survey data in each setting.
- Work with the identified channels and influencers to ensure accurate, up-to-date information about vaccines is shared with health workers via these channels and to debunk misinformation.

What we know about the social drivers for health workers' vaccine acceptance in MENA

The available studies on health workers in the MENA region have largely neglected to interrogate the social dimensions of vaccine acceptance among this group. Social drivers that might influence vaccine uptake include social norms, social pressure, networks of influential individuals, collective self-efficacy, social cohesion, decision-making patterns, moral norms and religion.⁸⁰ A Lebanese study broached the question of descriptive norms by asking whether health workers would be more comfortable getting the vaccine if they saw that their neighbours, community leaders, religious leaders, doctors and celebrities were doing so. Fifty-four per cent agreed that they would.⁵⁰

Where do we go from here?

- Collect data on social norms and other social drivers that might influence vaccine acceptance among HWs in MENA.
- Work with appropriate influencers to make vaccine acceptance and uptake more visible where it is occurring and to magnify positive social norms.

What we know about the individual drivers for health workers' vaccine acceptance in MENA

Among the individual level barriers to vaccine acceptance, concerns about the safety and efficacy of the vaccine featured most prominently, signalling a need for more accurate and trustworthy information about the vaccine to address these concerns.

PERCEPTIONS OF VACCINE SAFETY

Health workers across the region were concerned and unsure about the safety of the COVID-19 vaccine.^{56,62,78} For example, 61% of health workers in Palestine thought the vaccine would lead to significant side-effects, and 55% feared they may contract COVID-19 from the vaccine.⁷⁸ Safety concerns tended to be somewhat less than the general population, but still significant.^{49,62} Only in Algeria, health workers reported higher concerns about vaccine safety than the general population.⁵⁶

Unsurprisingly, there was a clear correlation between belief that the vaccines were safe and vaccine acceptance.^{39,49,50,67,69,70,71,72, 79,77,81} As an example, 91% of health workers in Egypt cited fear of side effects as their reason for unwillingness to take the vaccine.⁷¹ In Palestine, Iran and Sudan, those who were reluctant to take the vaccine were two and three times as likely to fear long-term complications from the vaccine as those who were willing.^{39,69,70}

Health workers who thought that the vaccine trials had been rushed and the vaccines had not been properly tested were less likely to accept the vaccine.^{67,71,72,79,81} For Palestinian nurses, insufficient data regarding vaccine safety was the main reason that 40% of participants intended to delay vaccination until more information was available.⁶⁹ A multicountry study found that health workers within Arabic-speaking countries were more likely than those in other countries to think the vaccine trials had been inadequate. It was suggested this may be due to Arab countries being the first to approve Chinese vaccine candidates, which had less evidence for their safety and efficacy.⁶⁷

PERCEPTIONS OF VACCINE EFFICACY

Greater confidence in the vaccines' efficacy was also associated with higher acceptance rates among health workers across the region.^{39,67,71,72,77,79,81} For example, in Iran, those with a greater belief in vaccine efficacy were at least three times more likely to accept the vaccine.³⁹

Health workers in Jordan were found to have more confidence than the general population in the vaccine's ability to protect against the virus, including against the mutated strains (52% compared to 34%).⁴⁹ Doubts about whether the vaccine would provide long-term immunity were identified as barriers to acceptance among health workers in two multicountry studies and a Palestinian study.^{67,78,81}

KNOWLEDGE AND AWARENESS

Two studies in Lebanon^{50,77} and one in Egypt⁷¹ found that the majority of health workers felt they did not have enough information about the COVID-19 vaccine (82%, 52% and 76% of respondents respectively). Lack of reliable information about the vaccine was found to be significantly associated with lower acceptance in Lebanon,⁷⁷ Palestine^{69,78} and Egypt.⁷¹ In the latter case, health workers felt there was not enough available evidence due to a lack of clinical trials, and unknown protection and immunity duration.⁷¹ The majority of health workers in a Lebanese study asserted that they would take the vaccine if they had reliable information about it.⁷⁷ Nurses in Palestine who were reluctant to take the vaccine perceived themselves to have three times less knowledge than their counterparts who were not reluctant, and 98% of those who chose to delay vaccination due to safety concerns said they would be more confident when more knowledge became available.⁶⁹ On the other hand, health workers in Sudan who rated their knowledge about the COVID-19 vaccine as excellent were the least willing to be vaccinated.⁷⁰

Lack of knowledge about what vaccine type was available in their country was also a strong predictor for lower acceptance rates among health workers.^{67,75} A multinational study found this pattern to hold across the region, and also when compared to non-Arab countries. Thirty-four per cent of health workers in Arab countries did not know the types of vaccines approved in their countries, as opposed to 19% in other countries, and acceptance was generally lower in Arab countries.⁶⁷

Where do we go from here?

- Work to ensure health workers have access to adequate and reliable information on vaccine safety and efficacy and on the available vaccine types in their country.

GENDER

Gender was a strong predictor for vaccine acceptance among health workers across the region, with men overwhelmingly more accepting than women.^{67,76,78,79, 81} This is in line with findings for the general population. In several cases, male health workers were two to four times as likely as female health workers to accept a COVID-19 vaccine (Saudi Arabia,^{72,79} Lebanon,⁷⁷ Egypt,⁷¹ Sudan⁷⁰). Libya was the only country where female health workers were found to be more accepting of the COVID-19 vaccine than males,⁸² or where there was no difference between genders.⁶²

Some explanations have been offered for this difference:

- Men tend to occupy roles with more advanced training, such as physicians, while females are more likely to occupy nursing roles (Egypt⁷¹). Relatedly, since lack of information has also been found to be associated with lower acceptance, it may be significant that male health workers tend to have more knowledge about the details of COVID-19 vaccines than females.⁷⁵
- Male health workers are more likely to deal directly with COVID-19 patients, leading to greater salience and risk perception (Egypt⁷¹).
- COVID-19 infection rates are reportedly higher among men, leading to a greater risk perception among them (Lebanon⁷⁷ and Saudi Arabia⁷²). Conversely, men have been found in previous studies to be more prone to take health and safety risks than females, so they may be more willing to accept the perceived safety risks associated with the vaccine (Palestine⁷⁸).
- Adverse events from COVID-19 vaccines have been presented in the media as more common among women than men, creating a perception that the risk of negative side effects are greater for women than for men (Sudan⁷⁰).

Where do we go from here?

- Gather data to understand the reasons why men are more accepting than women of the COVID-19 vaccine.
- Target female health workers specifically through appropriate channels and influencers, and through women's organisations and other community-based groups to address their concerns and share accurate information.
- Engage female health workers as influencers in RCCE campaigns.

PERCEIVED RISK OF COVID-19 – SUSCEPTIBILITY AND SEVERITY

There was a clear correlation between perceived risk and vaccine acceptance across studies, where those who saw COVID-19 as a greater risk and were more concerned about its effects were more likely to accept the vaccine.^{50,69,70,71,72,76,78,79} Only one study (Lebanon) found that perceived susceptibility and perceived severity were not associated with vaccine acceptance.⁷⁷ In some studies, health workers were found to have a relatively high perception of the risk posed to their country and themselves by COVID-19. For example, 98% of health workers in a Lebanese study believed that health workers were at high risk of contracting COVID-19⁶⁸ and 92% of health workers in an Egyptian study thought COVID-19 was a dangerous disease.⁷¹ On the other hand, another Lebanese study found that 65% thought they were not at risk of severe complications from the virus.⁵⁰ A study that included all Arab countries and territories found that vaccine acceptance was clearly correlated with

the number of COVID-19 cases and deaths per million in each country, suggesting that the higher salience and risk perception attributable to higher case numbers and fatalities leads to higher acceptance.⁶⁷

OCCUPATION, PROFESSION AND YEARS OF TRAINING AND EXPERIENCE

A number of studies found that nurses were the least accepting of vaccines of all health worker categories (Sudan,⁷⁰ Kuwait⁷⁶ and Palestine⁷⁸) while physicians tended to be the most accepting (Saudi Arabia,⁷⁶ Palestine⁷⁸). This may relate to the higher level of training and greater knowledge about COVID-19 among physicians.⁷⁵ In a Sudanese study, vaccine acceptance was found to increase significantly with years of working experience and amount of COVID-19-related training;⁷⁰ however, nurses in Palestine were less likely to accept the vaccine if they had advanced training.⁶⁹ In Tunisia⁷³ and Palestine,⁷⁸ health workers working in the private sector were more accepting, which in the case of Tunisia may be related to the fact that sick leave is not commonly paid in the private sector. Conversely, in Kuwait, health workers from the private sector were less accepting, possibly due to access constraints, since vaccination campaigns are organised through the public sector.⁷⁶ In a 10-country study, pharmacists were found to be less accepting than other groups.⁸¹

VACCINE HISTORY

All studies that looked at previous vaccine acceptance found that those who had previously received the influenza vaccine or who had never refused a vaccine were more likely to accept the COVID-19 vaccine,^{67,72,77,78,79} suggesting that some drivers of hesitancy are not unique to the COVID-19 vaccine.

COVID-19 HISTORY AND SALIENCE

There was divergence between countries and studies in terms of the way in which having had COVID-19 previously affected vaccine acceptance. In Saudi Arabia,⁷² health workers who had previously been diagnosed with COVID-19 were more accepting of the vaccine, while the opposite was true for Libya,⁶² Lebanon⁷⁷ and countries in a multinational study.⁶⁷ Another study in Saudi Arabia⁷⁹ and one in Egypt⁷¹ found no significant correlation. Meanwhile, health workers who had a family member or friend who had been infected with COVID-19 in Saudi Arabia were more likely to accept the vaccine, but the opposite was true if a friend or family member had died from COVID-19.⁷⁹ Those who had dealt directly with COVID-19 patients in Egypt⁷¹ and Sudan⁷⁰ or who worked on the frontline in Saudi Arabia^{72,79} and Lebanon⁷⁷ were more likely to accept vaccination.

Where do we go from here?

- Communicate risk to populations that are more complacent, including those who have previously had COVID-19, and make it relevant to their situation.
- Target specific categories of health workers that are less accepting, e.g. nurses, and pay attention to differences between the public and private health sectors.

SENSE OF COLLECTIVE RESPONSIBILITY AND ALTRUISM

Concern about passing the virus to families or patients was found to be a strong motivator to get vaccinated in Palestine,⁶⁹ Sudan⁷⁰ and Lebanon,⁷⁷ and a sense of collective responsibility was found to be a predictor for vaccine acceptance in Egypt,⁷¹ Kuwait⁷⁶ and Lebanon.⁷⁷

GEOGRAPHIC LOCATION

Studies in Tunisia⁷⁹ and Lebanon⁷⁷ found that health workers residing in rural areas or far from the capital were less accepting of the COVID-19 vaccine. The opposite was true for Saudi Arabia, where it is thought that higher case numbers in the southern region may have contributed to higher acceptance there.⁷²

AGE

It was difficult to find a pattern in the available data about the effect of age on COVID-19 vaccine acceptance, as was found in previous studies with regard to COVID-19 prevention behaviours in the region.⁴¹ Some studies found younger cohorts to be more accepting of the vaccine (Libya,⁶² Palestine^{69,78} and a multi-country study⁸¹), while some found that acceptance increased with age (Tunisia,⁷³ Lebanon⁷⁷ and a separate multi-country study⁶⁷).

OTHER SOCIODEMOGRAPHIC FACTORS

Several studies looked at demographic variables such as marital status, income, occupation and educational level, and did not find any significant correlation with willingness to receive a COVID-19 vaccine (Libya,⁶² Saudi Arabia,^{72,79} Egypt⁷¹ and Palestine⁶⁹).

Where do we go from here?

- Gather more data on potential motivators for acceptance (e.g., collective responsibility, protection of loved ones), and highlight these in communications.
- Gather more data on the impact of sociodemographic factors such as geographic location, age and income.

ADDITIONAL RESOURCES

Resources and training materials for RCCE on COVID-19 vaccination:

WHO and UNICEF. Conducting community engagement for COVID-19 vaccines: interim guidance:

<https://apps.who.int/iris/handle/10665/339451>

WHO. Facilitators Guide: Communication with health workers about COVID-19 vaccination:

<https://apps.who.int/iris/bitstream/handle/10665/343963/WHO-EURO-2021-2282-42037-57838-eng.pdf?sequence=1>

Data for action: achieving high uptake of COVID-19 vaccines (Guidance on gathering and using data to understand intentions on vaccination):

<https://www.who.int/publications/i/item/WHO-2019-nCoV-vaccination-demand-planning-2021.1>

SSHAP briefs, social science series on COVID-19 vaccines:

<https://www.socialscienceinaction.org/emergency/covid-19-pandemic/#vaccines>

WHO, UNICEF, IFRC. RCCE Action Plan Guidance (for principles of good RCCE):

[https://www.who.int/publications/i/item/risk-communication-and-community-engagement-\(rcce\)-action-plan-guidance](https://www.who.int/publications/i/item/risk-communication-and-community-engagement-(rcce)-action-plan-guidance)

Collective Service for Risk Communication and Community Engagement (RCCE). Risk Communication and Community Engagement Guidance on COVID-19 Vaccines for Marginalised Populations: <https://www.rcce-collective.net/resource/risk-communication-and-community-engagement-guidance-on-covid-19-vaccines-for-marginalised-populations/>

IFRC. Pocket Guide for Community Engagement and Accountability Practitioners. The Essential COVID-19 Vaccine Resources: <https://communityengagementhub.org/resource/pocket-guide-for-community-engagement-and-accountability-practitioners/>

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CONTACT

If you have a direct request concerning the brief, tools, additional technical expertise or remote analysis, or should you like to be considered for the network of advisers, please contact the Social Science in Humanitarian Action Platform by emailing Annie Lowden (a.lowden@ids.ac.uk) or Olivia Tulloch (oliviattulloch@anthrologica.com).

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