



Increasing Refugee Registration and Uptake of the COVID-19 Vaccine in Lebanon

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I. Introduction

In Lebanon, the COVID-19 vaccination campaign was initiated on February 14, 2021 after receiving the first batch of COVID-19 vaccines. The campaign adopted an inclusive rollout procedure where vaccines were made available to all those residing in the country regardless of their nationality or residency status based on a sequential rollout procedure that takes account of priority categories such as health workers, those over 75 years old and people with comorbidities. All individuals who were interested in receiving the vaccine had to complete registration on the e-governmental IMPACT platform which was launched on January 28th by the Ministry of Public Health.

Following the launch of the vaccination campaign, there has been intensive efforts to maintain a steady supply and demand of vaccinations. Several initiatives have been launched by the Lebanese government, media outlets, international as well as local organizations to curb vaccine hesitancy, increase awareness and build confidence in vaccines. Initiatives included public awareness and mass media campaigns, periodic walk-in marathons, lockdowns, mobilization of community engagement and outreach, engagement of community influencers, employment of mobile vaccination units and vax buses, as well as the recent government restrictions on the unvaccinated.

While many of these efforts had contributed to an upsurge in vaccination rates which increased considerably over the last few months, however, vaccine uptake remained sub-optimal in mid-2021 among the general population in Lebanon but more prominently among the refugee population. While many challenges were observed proportionally among both the host and refugee populations, a number of challenges have emerged particular for refugees and vulnerable populations who live in a state of vulnerability and economic deprivation as well as a constant fear of detention and deportation.

Against this background, a collaboration between Nudge Lebanon and UNHCR came forth in order to promote COVID-19 vaccine acceptance, registration and uptake among the refugee population in Lebanon through an assessment of the behavioral barriers impeding vaccine uptake. To this end, a number of behavioral interventions were launched across four waves of experimentation. A major component of the collaboration constituted capacity building and trainings on behavioral science and its applications in the realm of vaccination and beyond.

II. Context

It is estimated that there are close to 1.5 million Syrian refugees in Lebanon, around 225,000 Palestinian refugees, 30,000 Palestinian refugees from Syria and 15,800 refugees of Ethiopian, Iraqi, Sudanese, and other origins.¹ UNHCR supports more than 844,000 refugees², over 12,000 asylum seekers and 8,000 other vulnerable people³. Although everyone has been affected by the pandemic, its impact was not shared equally; persons of concern (refugees, asylum seekers and stateless or people at risk of statelessness), and other vulnerable populations have been disproportionately affected in the economic, social and health fronts⁴. A recent assessment on the socio-economic

¹ <https://www.worldbank.org/en/news/feature/2021/06/18/vaccinating-refugees-lessons-from-the-inclusive-lebanon-vaccine-roll-out-experience>

² <https://data2.unhcr.org/en/documents/details/90915>

³ UNHCR registration data as of March 31, 2021

⁴ <https://apps.who.int/iris/bitstream/handle/10665/344793/WHO-2019-nCoV-immunization-refugees-and-migrants-2021.1-eng.pdf>

conditions of refugees in Lebanon reveal that nine out of ten refugees live in extreme poverty.⁵ Less than 50% of refugee families live in safe shelters that are not overcrowded, in substandard or dangerous conditions⁶. Exacerbating their vulnerability status is the fact that only 16% of those above the age of 15 have legal residency⁷.

Shortly after the COVID-19 vaccination campaign had begun in Lebanon, UNHCR mobilized refugee volunteers, NGOs and staff, as well as its communication channels, to remove barriers that persons of concern might face in registering on the government's IMPACT platform and build confidence in the vaccine among the refugee population. More than 700 volunteers now take part in the community engagement efforts across all governorates. The plan was initially set out to engage refugees aged 75+ but expanded over time to include people of younger ages in line with the national vaccine rollout plan. The main goal was and remains to provide support with registration on the IMPACT platform as well as raise awareness and address refugees' concerns and questions around the COVID-19 vaccine. The UNHCR effort later evolved to also include Mobile Vaccination Units that provided vaccination services in regions with low vaccine uptake and/or high infection rates.

III. Scope of the Project

As a first step, Nudge Lebanon undertook an appraisal of past communication materials used in vaccination campaigns, and worked on behaviorally informing upcoming communications and community engagement structures such as volunteers to overcome informational biases. The process involved reviewing materials including posters, SMS messages, videos, social media posts as well as other communication materials and injecting insights from behavioral science to maximize their impact. This exercise morphed as part of the process for the UNHCR teams whereby new communication materials started following the comments and feedback provided earlier and used them as design principles, making every item as 'easy', 'attractive', 'social' and 'timely' as possible – in reference to the EAST framework⁸.

Nudge Lebanon simultaneously developed a behavioral map to identify the biases and bottlenecks impeding the successful implementation of the immunization program and outline the behavioral tools that can be used to overcome these challenges. The behavioral map was developed using insights and findings acquired from field observations, baseline assessment of collected data through KoBo toolbox, as well as a review of behavioral theory and literature.

The end result of the behavioral map was a long list of potential interventions which was then shortlisted based on feasibility, impact and relevance. To achieve the research objectives, multiple streams were pursued. For each of the key stages in the decision-making journey (illustrated below), a set of behavioral interventions was adopted for implementation, which took place over four waves during the period of appointment.

This document aims to provide an overview of the experimentation pillar which carried on from July 2021 to December 2021, as well as the results, lessons learned and recommendations for the way forward.

⁵ <https://www.unicef.org/lebanon/press-releases/un-syrian-refugees-lebanon-struggle-survive-amid-worst-socio-economic-crisis-decades>

⁶ Vulnerability Assessment of Syrian Refugees in Lebanon (Vasyr 2021), Lebanon Crisis Response Plan (LCRP): <https://data2.unhcr.org/en/documents/details/90915>

⁷ *ibid*

⁸ <https://www.bi.team/publications/east-four-simple-ways-to-apply-behavioural-insights/>

IV. Mapping out the Decision-making Journey to Getting Vaccinated

Given that the primary target stakeholders were persons of concern, i.e. refugees, it was important upfront to understand and map out the journey in their decision to get vaccinated.



Figure 1: Journey map for the persons of concern

The first stage on knowledge focused on whether refugees had correct knowledge on what vaccines are and their effectiveness, as well as knowledge of who should get vaccinated. The second stage on willingness focused on refugees' confidence in vaccines and their intentions to get vaccinated. The stage on registration focused on whether refugees could successfully register for an appointment on the IMPACT portal, and the last stage was centered around whether refugees attended their first and second dose appointment on time.

Each of the stages has its own set of behavioral, structural and informational bottlenecks. However, it is key to make a distinction and separate the knowledge stage from the rest of the journey, since this stage was mainly tackled by the appraisal of communications and behaviorally informing future communications. The barriers that were relevant in the three following stages of the journey (Willingness, Registration, Vaccination) were addressed through experimentation.

Deficiencies in knowledge and information that are relevant in the first stage of the journey for refugees were addressed through the first pillar of the project that constituted: (1) the integration of behavioral insights within communication materials to inform content and delivery of messages, as well as (2) the training of volunteers and staff part of community engagement and outreach on behaviorally informed communications to promote vaccine acceptance during outreach visits. Rapid review of communications involved adding behavioral insights from the Little Jab Book⁹, that advises on the use of 18 strategies when it comes to vaccine uptake; use of social norms to update perceptions, simplify messages, positive framing, saliency of information, timely, etc. For example, videos playing at the validation activity sites and reception centers were injected with a number of behavioral tools (e.g. social norms, emotions, effect of the messenger, ego, loss aversion, hassle factor, etc.) to help deliver key messages about the COVID-19 and the importance of vaccination to refugees who could view the videos at the waiting areas of these sites.

Upon appraising UNHCR's communication and community engagement efforts, it was found that community outreach had been very effective in increasing registrations. As of mid-December, registrations done by community outreach efforts contributed to around 27% of total registrations by refugees on the IMPACT platform.¹⁰ In addition to community outreach, other communication efforts have been successful in boosting registration rates, each in a different way. While the activation of communication trees and the use of bulk SMS at the beginning of the vaccine rollout back in March 2021 led to significant surges in registrations among refugees of 92% and 149% respectively, their impact was not sustained over time. Nevertheless, although community outreach is a more sustainable approach to maintain momentum among the refugee community and increase trust in the vaccine, it should always be complemented by communications through WhatsApp Trees and SMS to fill in the gaps in knowledge that arise due to a rapidly evolving situation.

⁹ <https://inct.global/wp-content/uploads/2021/04/thelittlejabbook-final.pdf>

¹⁰ UNHCR data

More recently, mass communications related to UNHCR’s revised health policy that required refugees to pay part of the COVID-19 hospitalization fees starting January 2022 (October 22nd) in addition to mass communication related to government restrictions on movement for unvaccinated individuals (Dec 2nd) led to considerable spikes in the number of registrations and vaccinations as revealed from the IMPACT Open Data. In essence, these enactments can be seen as incentives for getting vaccinated; the former in the form of a monetary incentive and the later in the form of a non-monetary incentive (i.e. ensuring safe and free mobility after becoming vaccinated).

V. Barriers to Vaccine Uptake

There is no doubt that on top of the challenges faced by the general population, refugees are faced with a number of difficulties dictated by their poor livelihoods and socio-economic conditions. Challenges such as lack of financial means, lack of access to transportation, lack of phones and internet connectivity, low digital literacy as well as lack of documentation were important barriers to access the vaccine.

Nevertheless, input from field mobilizers, especially community volunteers, confirmed the prevalence of challenges that have strong behavioral roots such as fear of side effects, misperceptions around the safety and importance of the vaccine, lack of knowledge on how to register, overconfidence of getting the virus, denial of the severity and existence of COVID-19, as well as the perceived security risks from disclosing personal information. The relevance of behavioral challenges highlighted the need for a more comprehensive approach that accounts for the human irrational behaviors stemming from cognitive and behavioral biases.

In studying the extent to which such biases affect decision-making processes, behavioral science offers a wide range of tools for influencing decision-making processes and improving choices made by the target population.



Figure 2: The focus of the behavioral mapping exercise

As part of the behavioral mapping process, behavioral, informational and structural challenges were identified for every stage in the journey map. Behavioral barriers are barriers that make it difficult for individuals to adopt a desired behavior and can take the form of emotional, societal or habitual barriers including habit, fear, and negative experiences. Issues related to feasibility, accessibility and affordability can be more rightly categorized as structural barriers. Such barriers are key when considering facilitators of change for refugee and vulnerable populations. Among the most important structural barriers are lack of phones and internet connectivity, low digital literacy, lack of access to transportation, lack of documentation as well as protracted low levels of trust in institutions. On another front, informational challenges relate to misinformation, lack of adequate information or the complexity of provided information.

Table 1 zooms into the former type of barriers, providing a non-exhaustive list of behavioral barriers for each of the remaining three stages, namely willingness, registration and vaccination. The main objective was to break down the behavioral challenge, dissociate the structural from the behavioral barriers and identify the relevant psychological biases to eventually be able to ideate potential solutions. The key idea is that people who are vaccine hesitant are not necessarily vehemently

opposed to vaccines, but are rather unsure due to inaccurate perceptions, emotional, societal or familial impediments and can be swayed to get or refuse a vaccine. Here lies the importance of transparent, simplified, salient and timely communications.

Table 1: Behavioral Barriers Relevant to Willingness, Registration, & Vaccination

Willingness	Registration	Vaccination
<ul style="list-style-type: none"> • Failure to recognize the long-term benefits of the vaccine • Overconfidence and not feeling at risk of getting COVID-19 • Social norms: not getting the vaccine because community members are not getting it • Belief that components are not halal or could lead to infertility • Reluctance of refugees and vulnerable groups to get vaccinated due to beliefs that vaccines are being tested on them • Belief that lower daily COVID-19 cases mean no need to get vaccinated • Decision to vaccinate is in the hands of male heads of household/ community leaders who are against the vaccine • Misperceptions about what vaccines are and how they work • Unwillingness to learn about the vaccine because of disbelief in virus or fatigue about the subject • Wrong perception that refugees will not be prioritized • Wrong belief that a previously infected person does not need a vaccine • Wrong belief that vaccines are not effective or are meant only for those infected 	<ul style="list-style-type: none"> • Fear that signing up with an expired/foreign ID will pose a risk of deportation • Hassle involved in the registration process • Forgetfulness and procrastination • Lack of determination • Fear of sharing their personal data online • Cognitive overload (worried about other complex problems like poverty, unemployment, etc.) • Fear of getting the form from the Mukhtar for those without a legal status • Confusion over the two available websites for appointments and marathons (COVAX and Grabajab) 	<ul style="list-style-type: none"> • Fear of sharing the same sign-up system with Lebanese citizens and fueling tensions over resource scarcity • Fear of being deported if they move towards the vaccine site • Unwillingness to get vaccinated even after registration due to the long waiting period and delayed appointments • Walk-ins due to confusion about appointment times • Fear from hearsay about side effects may lead people not to attend their appointment, even if registered • Unwelcoming environment for refugees during the first dose, preventing visiting for the 2nd dose

These barriers were further validated, although some became more salient during certain periods, others lost relevance and new barriers emerged. At a national level, the most commonly cited barriers were fear of long-term side effects, lack of trust in the vaccine due to rumors, and fear of blood clots specific to the AstraZeneca vaccine, leading to preference for a particular vaccine. Site visits also shed light on relevant bottlenecks like overconfidence in one’s immunity and the immunity provided by previous infection as well as disbelief in the existence of COVID-19 and an indifference to infection related to God’s will. These barriers existed to varying degrees across different populations with the younger population citing overconfidence on a more frequent basis. At some point, transportation costs to the vaccination site became a relevant barrier, but this was mitigated with the introduction of mobile vaccination units, vaccination buses and free transportation services. The most common barrier remained fear of the vaccine’s side effects among refugees across the entire country.

VI. Literature Review

The application of behavioral insights has long been pertinent to the realm of pandemics and vaccine uptake, but has grown tremendously since the COVID-19 pandemic, starting with its use in promoting compliance with preventative measures all the way to its use for promoting vaccine uptake.

In one recent study, assessments of vaccination intentions among Americans revealed that messages emphasizing the personal health risks and collective health consequences of not vaccinating can significantly increase intentions to vaccinate.¹¹ Another study that tested the impact of three different

¹¹ <https://www.frontiersin.org/articles/10.3389/fpos.2021.630133/full>

forms of incentives (that are not necessarily monetary in nature) on COVID-19 vaccination uptake in a hypothetical setting revealed that incentives in the form of (1) providing freedoms for vaccinated citizens; (2) providing financial remuneration (0 €, 25€, 50€); and (3) providing the opportunity to vaccinate at local doctors, can be used successfully to increase vaccination uptake.¹² It was interesting to see that older age groups were more responsive to the allowance of local access and younger age groups to the provision of more enhanced freedoms.

Different framing of messages has also been found effective at enhancing vaccine confidence and willingness to vaccinate. A recent study in the USA revealed that the use of emotions (Helping loved ones) and reciprocity (Getting lives back) increased the willingness to vaccinate against COVID-19.¹³ Another study found that mentioning in a message that the vaccine was reserved for the recipient was the most effective from a set of 19 different messages in terms of improving the likelihood to receive the vaccination.¹⁴

A condensed summary of behavioral tools applied in the realm of vaccination can be found in *The Little Jab Book*.¹⁵ The book offers a total of 18 strategies drawn from evidence-based studies conducted as part of historical vaccination efforts from across the world, with a focus on the Global South where challenges to vaccine uptake are the most prevalent. The book highlights strategies that can improve on communications meant to increase trust in vaccines like the use of positive framing, anticipation regret (highlighting that those who avoid vaccination may miss out), social norms (telling people what others are actually doing), ego (helping people feel entitled to the vaccine) and emotions (encouraging them to think about those they care about), as well as strategies that can improve on vaccination programs like hassle simplification, co-creation of solutions with people of interest and the involvement of community leader and trusted messengers, among others.

While it's important to look at what has worked and what has not worked elsewhere, it is worthy to note that most behavioral change strategies are essentially contextual in nature and their success depends to a large extent on the context where they are applied and the population they are intended to target. A review of over 200 benchmarks on vaccine uptake reveals a number of lessons learned including the following: (1) incentive effectiveness largely depends on the context and implies many ethical considerations, i.e. raising questions about safety, feeling coercive for struggling people, undermining moral value of the act etc.; (2) while giving small incentives has had some effect, e.g., lottery and symbolic gifts, providing larger incentives has been less successful, particularly in cases of hesitant populations as it raised a question and conveniently confirmed a conspiracy narrative; (3) using simple reminders is generally effective, and can become more so if personalized, e.g., bracelet, SMS, or if coupled with implementation intention tools such as calendars and goal setting tools; (4) the success of messengers carrying out messages depends on the context, in particular, how respected and trusted is the 'messenger' by the target population; (5) providing the target population with an indication of what the 'norm' is or how it is changing, that is updating current perceptions, has shown to be effective in the context of vaccine uptake and that has been consistent across Western countries and the Global South.

¹² <https://osf.io/ax6pw/>

¹³ <https://www.bi.team/blogs/four-messages-that-can-increase-uptake-of-the-covid-19-vaccines/>

¹⁴ <https://www.pnas.org/content/118/20/e2101165118>

¹⁵ <https://resourcecentre.savethechildren.net/pdf/thelittlejabbook-final.pdf/>

VII. Four Waves of Behaviorally Informed Experiments

To achieve the targets set for the project, informed by assessments of the situation and results of recent successful experiments, a number of interventions were rolled out across four waves of experimentation, as illustrated below:

- Wave 1: On-site interventions to increase registrations for the COVID-19 vaccine
- Wave 2: Wider on-site interventions and trainings for volunteers and staff
- Wave 3: Experimental survey to increase refugees' willingness to vaccinate
- Wave 4: Intervention to increase attendance to vaccination appointments

a. Wave 1: On-site interventions to increase registrations for the COVID-19 vaccine

Wave I interventions took place at the level of card validation sites, a quarterly nationwide UNHCR activity where refugees are invited to validate their 'red cards' and update their individual records in order to continue receiving basic assistance. Card validation sites are key touchpoints where thousands of refugees congregate on weekly basis, making them cost-effective ways to engage with a large number of refugees across all governorates. As such, interventions that aimed at increasing vaccine registrations were conducted in four validation sites (Nabatiyeh, Tyre, Bent Jbeil and Chouiefat).

The intervention consisted of three main features: (1) Making key messages more salient (heard) and standardized using a screen that plays videos of vaccine testimonials and behaviorally informed animated messages/nudges, (2) Introducing behaviorally informed messages that tackle main drivers of vaccine hesitancy, using social norms to update perceptions of people and (3) Conducting on site trainings for health protection staff on key behaviorally informed messages to be used in their health awareness session. The main purpose was twofold: (a) to standardize and increase the saliency of messages delivered at these sites through the use of a screen and (b) to introduce behaviorally informed messages that include social norm messages to update perceptions around uptake, emotional appeals to protect oneself and loved ones and call to action to motivate impulsive registration and/or vaccination. The videos were developed by Nudge Lebanon and assimilated a number of previously developed testimonials by UNHCR as well as newly created animated messages leveraging nudging tools such as social norms, emotions and effect of messenger.

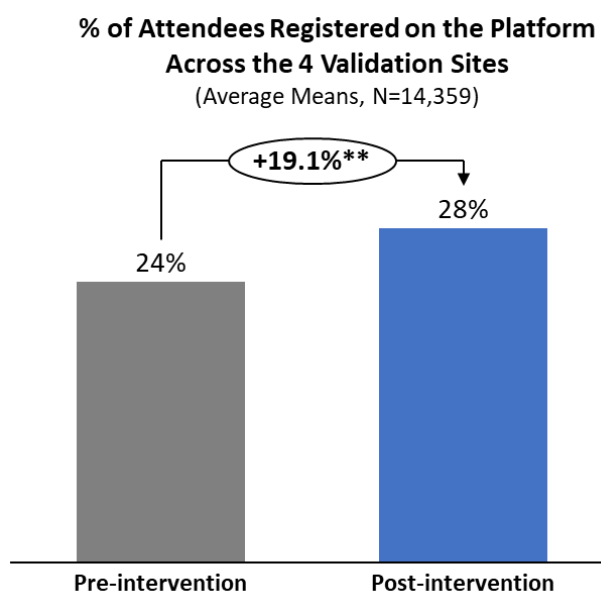


Figure 3 Results of the validation site intervention

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Overall, the combined interventions of salient messages, social norms messages and site trainings to volunteers and staff, resulted in a 19% increase in registrations (figure 3). Registration rates increased in all four sites, with Nabatiyeh showing the most dramatic increase (48%) in registrations.

b. Wave 2: Wider on-site interventions and trainings for volunteers and staff

Wave 2 expanded on Wave 1 set of interventions such that more thorough trainings were provided to all volunteers and staff involved in the community engagement and outreach efforts. In addition, behaviorally informed videos customized for every region were incorporated in card validation activities, as well as reception centers which are a major point of contact with refugees.

Trainings offered members of the community engagement efforts with key strategies that have been proven effective in reducing vaccine hesitancy and interactive practical sessions from the Little Job Book. To reinforce the learnings from training sessions, volunteers and staff were provided with an A5-sized reminder sheet aimed at standardizing awareness raising communications during outreach work. Trainings received overwhelmingly positive feedback from volunteers and staff who demanded more frequent and alike trainings. In fact, a pre-post survey administered in North and BML Field Offices revealed that the training was successful in increasing volunteer and staff willingness to vaccinate by 7% and their willingness to advise others to get vaccinated by around 5% (figure 4).

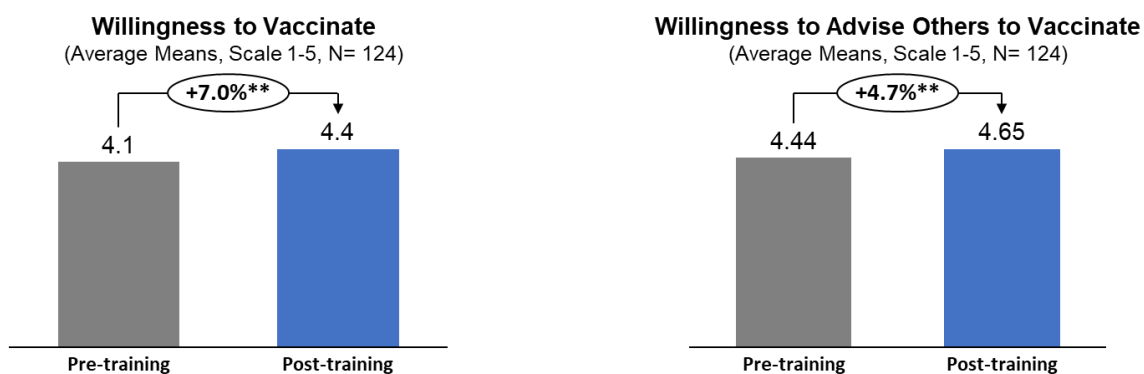


Figure 4 Results of pre-post survey in North & BML Field Offices
*p<0.1, **p<0.05, ***p<0.01

After the trainings there were also significant increases in registration rates by refugees on the IMPACT platform, with an increase in the range of 28-34% for the North, South and Nabatiyeh governorates.

c. Wave 3: Experimental survey to increase refugees' willingness to vaccinate

During the third wave of experiments, a phone-based survey was conducted by trained UNHCR-supported Call Center operators between Nov. 15 and Dec. 16, 2021 to assess the effectiveness of three different behaviorally informed communications on refugees' willingness to receive the COVID-19 vaccine. By also exploring the perceptions and trust levels of refugees as well as the behavioral barriers behind vaccine hesitancy, the survey also serves as the most recent point of reference with regards to refugee's attitudes towards the COVID-19 vaccine.

The sample included 1,569 responses, distributed almost proportionally between men (48%) and women (52%) as well as across specified governorates (Beqaa 39%, North 29%, Mount Lebanon 19%, Beirut 12%). Most of the respondents were from the 25-34-year age group (48%), followed by the 35-54-year age group (31%) and the 18-24-year age group (17%). Respondents above 55 years old represented only 4% of the sample.

The survey revealed that, while 55% of respondents were very willing to get vaccinated, 14% were still unsure and 19% were hesitant (hesitancy is defined as ‘definitely not’ and ‘probably not’), as shown in Figure 4. Vaccine hesitancy was higher among women (20%) than men (16%), which has been the case since the beginning of the pandemic. Interestingly, the higher the perception of refugees taking the vaccine was, the higher the willingness to get vaccinated; which sheds light on the importance of regularly updating the perceptions of refugees as uptake by their community members increases.

As expected, the most commonly cited barrier was a ‘fear of side effects’, cited by around 60% of respondents. Other barriers cited by around 8% of respondents included lack of confidence in vaccine safety, unnecessary of the vaccine and no appointment provided for them yet. While ‘fear of side effects’ emerges for respondents regardless of where they are on the hesitancy spectrum, barriers like ‘vaccine is unnecessary’ and ‘I am not confident about vaccine safety’ emerge overwhelmingly for vaccine hesitators, i.e. group of respondents who definitely or probably would not get vaccinated. Notably, women were significantly more likely to report ‘fear of side effects’ as a barrier compared to men.

Additionally, 42% of respondents answered that being provided with more facts about the safety and effectiveness of the vaccine would increase their trust in the vaccine, and 19% reported that if they clearly knew what the benefits and potential risks of the vaccine, they would have higher trust in the vaccine. In fact, slightly more than half of respondents (56%) agree on the importance of the vaccine in controlling the spread of COVID-19. One fourth (25%) are either not sure or not convinced about its importance.

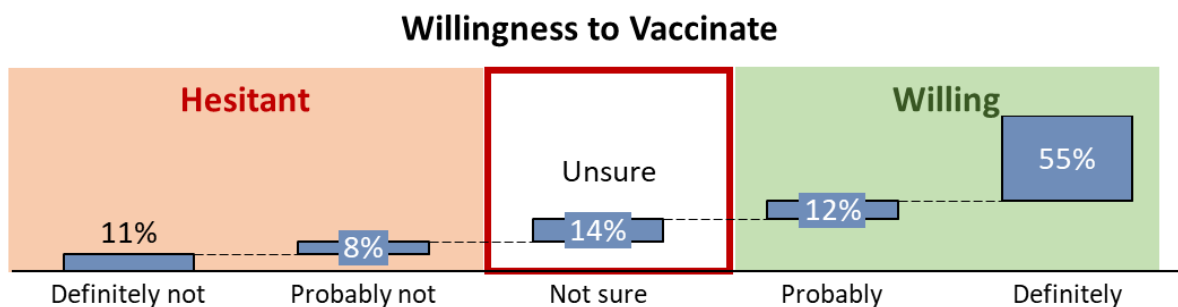


Figure 5 Willingness to vaccinate

Regarding the trust in sources of information, there were high levels of trust in United Nations organizations. UNHCR was the most trusted organization with 70% of respondents reporting full trust. WHO came second with a 61% reported full trust. Community doctors and MoPH came in third, with full trust level of 48% and 47%, respectively. Noteworthy, respondents were dramatically less trusting of religious leaders when it comes to health-related issues, with only 26% reporting full trust, as shown in Figure 6.

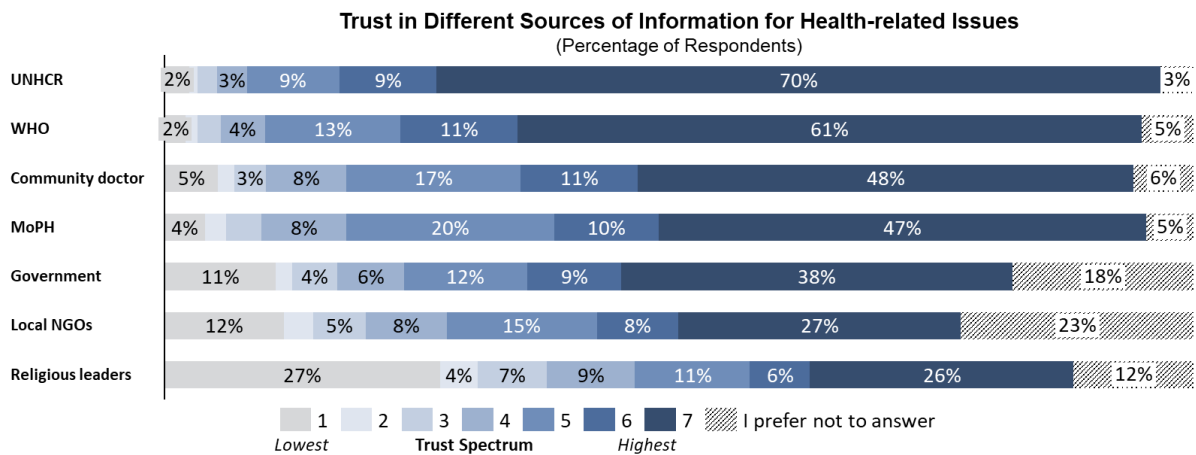


Figure 6: Trust levels on sources of information

It is noteworthy to mention that respondents had much higher perceptions around uptake by Lebanese than by refugees. While 43% of respondents believed that more than 60% of the Lebanese population will receive the COVID-19 vaccine, only 25% believed uptake by refugees will exceed 60%. Furthermore, around 30% of respondents expected refugee uptake to not exceed 40%. This is compared to 12% who expected that Lebanese uptake will not exceed the same threshold. While vaccine hesitancy was correlated with both the perception of uptake by refugees as well as the perception of uptake by Lebanese, however, the former relationship was stronger and revealed that those with higher perceptions of uptake by refugees were less vaccine hesitant. Together, these insights not only show the value of normative expectations, but also, and more importantly, of normative expectations when they result from one's reference network. Hence, people not only look at what others approve of but at what others in their reference network approve of, which means that people are more likely to be affected by messengers that they relate to (reference network).

The experimental survey evaluated the effectiveness of three behavioral messages on refugees' willingness to get vaccinated by randomizing participants to either a control condition, or one of three behavioral treatments; (a) a social norm message that provides refugees with information of social norms related to vaccination, (b) an anticipated regret message that tries to elicit a sense of anticipated regret by presenting refugees with a negative scenario that could be prevented through vaccination in an attempt to increase their willingness to get vaccinated, and (c) a dissonance

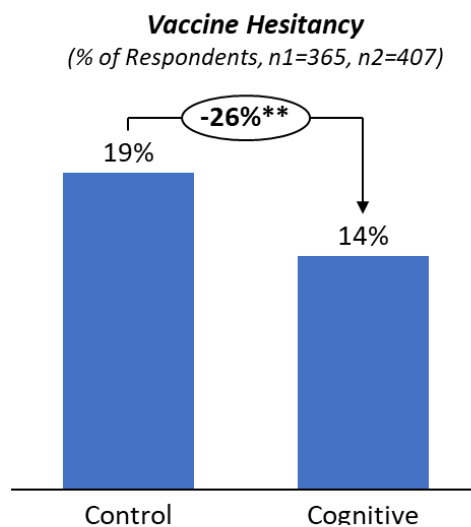


Figure 7 Impact of Cognitive Dissonance on Vaccine Hesitancy

induction message that provides refugees information about the success of other vaccines in eradicating major diseases in order to elicit cognitive dissonance over not getting vaccinated for COVID-19.

The cognitive dissonance message was the most effective by decreasing vaccine hesitancy by 26%. The impact was mostly observed for women, whose hesitancy decreased by 33%; middle-aged refugees whose hesitancy decreased by 41%; and residents in the Beqaa governorate whose hesitancy reduced by 45%. It was also noteworthy to see a higher impact among respondents who highly trusted WHO. As the dissonance induction message made reference to information reported by the WHO, this ratifies the prominence of choosing a relevant and trustworthy messenger in communications around vaccines.

The cognitive dissonance message serves as a way to reinforce trust in the safety of the vaccine by comparing it to the safety and effectiveness of other vaccines, addressing some of the main barriers identified like the vaccine being unnecessary and fear of side effects. This type of behavioral intervention could be scaled up to other contexts. For instance, according to ECDC, the main determinants of general vaccine hesitancy in Europe were around doubts of vaccine safety and lack of information¹⁶. However, it is important to point out that the mere fact of having received other vaccines, does not translate into less hesitancy to get vaccinated for COVID-19. It is the fact that the intervention highlights the dissonant behaviors of getting vaccinated for other illnesses and being hesitant to get vaccinated for COVID-19. In other words, people's previous behaviors do not suffice to nudge them to get vaccinated, and an intervention should be designed that makes this dissonance salient.

d. Wave 4: Intervention to increase attendance to vaccination appointments

As of October 2021, the number of refugees registered to get the vaccine stood at 175,000 while those who took the vaccine remained at a low 53,000, a third of those registered. This discrepancy between the number of registrations made on the IMPACT platform and the number of actual vaccines administered highlights an intention-action gap. While accessibility issues remain major structural barriers (e.g. lack of transportation, fear of being deported while crossing checkpoints, etc.), behavioral barriers that may impede vaccination even after registration is made include lack of knowledge on how to take an appointment after receiving the SMS link, long waiting times, delayed appointments, not to mention fear from hearsay about side effects. It is worthy to note that while the IMPACT registration platform and appointment taking process might seem simple and straightforward, it does require time and a few clicks and taps to get an appointment generated.

The fourth wave focused on bridging this intention-action gap through an intervention that employed pocket-sized commitment cards. The card endorsed a number of behaviorally informed elements including a social norm on how many people in Lebanon had received the vaccine, an emotional appeal, information that makes it easier on refugees to book their appointment once they receive an SMS message from MOPHCOVAX, and most importantly a commitment pledge to make it more likely they will show up to their appointment and comply with what they said they would like to do. The card also allows refugees to set out a plan for where and when to get the vaccine, by asking refugees to fill in the date, location, and time when their first and second vaccine appointments were due.

¹⁶ Source: <https://www.ecdc.europa.eu/sites/default/files/media/en/publications/Publications/vaccination-motivating-hesitant-populations-europe-literature-review.pdf>

The intervention took place in the South and Nabatiyeh governorates as part of the fourth quarter of UNHCR card validation activities. Commitment cards were distributed to refugees who registered on the IMPACT platform in order to increase the likelihood that they would show up to their appointment.

To evaluate the impact of the card, an interrupted time series design was employed where pre-intervention vaccination was compared with post-intervention vaccination. To control for the effects of other events and announcements we knew happened during the period of the intervention, the analysis used a multiple-group design where the South & Nabatiyeh governorates were employed as the treatment group and all other governorates combined as the counterfactual group. The results revealed that the treatment group (who were exposed to the intervention) increased daily vaccinations by around 6 vaccinations while the counterfactual group (who were not exposed to the intervention) increased vaccinations over the same period by only 2 vaccinations per day, equivalent to an increase of 180% in vaccination rates. The results are directional but not statistically significant and have to be seen in light of a number of limitations including limited access to data (access to only governorate-level data but not individual-level data), insufficient sample (announcement for curfew on the unvaccinated (2nd of Dec.) limited the data collection timeframe and might have decreased the power of the analysis) and proximity of external interruptions despite the employment of a counterfactual group to mitigate bias.

VIII. Lessons Learned and Recommendations

Deconstructing the decision-making journey and identifying the relevant behavioral barriers at each stage is an empowering strategy to devise relevant and optimal behavioral solutions

It is very important to understand the journey and the decision-making process that the target population goes through because this allows for a better dissection of the problem at hand and the challenges related to each stage. While seemingly simple, the vaccination process is complex and consisted of several steps, ranging from registration, receiving an SMS, keeping track of the SMS, booking an appointment to attending the first appointment, etc.... The IMPACT registration platform may appear to be a fast and straightforward way to generate an appointment, but navigating it does consume people's time and effort, especially those who are not tech-savvy. Even when people may have registered on the IMPACT platform, there are many factors that widen the intention-action gap, which must be addressed as well. Once there is an understanding of people's journey to get vaccinated, each stage cannot be isolated from the others; the desired outcome is to get the target population to follow-through each of the steps until they are fully vaccinated.

Adopting experimentation is important for finding out 'what works' and supporting decision making with evidence

Throughout the duration of the project, the numerous changes associated with its nature and the ongoing shifts in the context certainly challenged planning, implementing, and sometimes analyzing various interventions. Yet, this has further entrenched the importance of testing to know what works in which context, to learn from what does not and be tolerant with interventions that do not yield desired magnitudes in impact. The experimental phone survey provides a case in point for this, when results showed that sharing social norms and framing anticipated regret have not worked as much as cognitive dissonance has in decreasing vaccine hesitancy. Furthermore, testing can have different levels of sophistication, in cases where quick results are needed less complex tests can be conducted – simpler tests are better than no tests. Various testing methods were also elaborated during the capacity building sessions presenting various alternatives that cater to various contexts and levels of feasibility. Evidently, testing not only gave insights on what messages work, it also highlighted which

audiences and profiles were more receptive to different approaches and tools, giving insights on how to tailor messages and reach certain groups more effectively which was revealed in the survey when better responses were noted from women, middle aged refugees, residents of Beqaa, etc. Nowadays, with the ability to send different messages to contacts from databases and filter them according to various profiles, in addition to the efficacy of SMS and WhatsApp as touchpoints with POCs, it makes it easier to embed these lessons learned and customize different messages to different profiles before sharing, as opposed to relying on a unified approach to all audiences.

Leveraging several communication methods is the most optimal way forward

The most effective communication strategies rely on a combination of community outreach and the use of SMS and Facebook groups. Community outreach is effective and engaging, but it should be fortified with other initiatives such as timely messages, and more targeted communications that satisfy the necessities of different demographics who either have different needs or adopt different communication channels. These efforts should be mindful of not overflowing people with too much information, which may become overwhelming and end up having an undesirable effect.

Equipping the actors on the ground, e.g. outreach and community health volunteers, with powerful applied behavioral tools can optimize the community engagement efforts

It is crucial to train staff tasked with community engagement on how to deliver behaviorally informed clear and effective health messages, and how to address refugees' points of concern. The importance of keeping actors on the ground up to date with changing regulations related to the national deployment and vaccination plan cannot be undermined. This is important as information related to the several aspects of the pandemic, including recently the COVID-19 vaccines, has since been dynamic and subject to rapid changes, even at the country level where changes in eligibility to different types of vaccines, walk-in services, vaccination schedules and locations are subject to daily changes. A successful delivery of information impacts people's levels of trust in the authorities. Furthermore, it is recommended that positive real time feedback, for example in terms of the number of registrations completed through community engagement (CE) and outreach or the percentage increase (by week) in registrations at the CE level or national level, is provided to volunteers and staff. By providing OV/Staff with evidence on the actual outcome of their efforts, feedback messages offer reinforcement and can be powerful tools to boost OV/Staff intrinsic motivation.

Identifying existing entry points to address the target population is a cost-effective strategy to curb vaccine hesitancy

Vaccination strategies rely on hitting target numbers quickly. Therefore, it is in any government's best interest to devise cost-effective interventions that can target large groups of people and positively affect their decision to get vaccinated. In this case, validation sites were ideal touchpoints where thousands of refugees that had to attend sites for an unrelated purpose, were exposed to salient information that directly addressed some of the most relevant barriers related to lack of information or fear of the vaccine's side effects. Other touch points such as primary healthcare centers, reception centers, etc. can also be leveraged for the dissemination of information about COVID-19 vaccines and/or actual support with registration and/or rollout of vaccination. While addressing a large audience is important, these interventions must still be mindful of contextual implications, particularly dealing with vulnerable populations.

Leveraging trust between refugees and actors on the ground is a crucial factor in countering vaccine hesitancy

Data by the Office for National Statistics (ONS) shows that people living in England's most deprived areas are three times more likely to be hesitant about getting a jab than those in the wealthiest parts of the country¹⁷. For vulnerable groups, lack of trust is an important factor; social deprivation is associated with feeling being 'left behind' by government and society. The Oxford COVID-19 Vaccine Hesitancy study found that those who reported positive healthcare experiences with 'supportive doctor interactions and good NHS care' were more positive about vaccination¹⁸. In this regard, it's important to establish an environment of trust between refugees and actors on the ground. Trust can be strengthened through the involvement of doctors and people from the scientific community as research shows that people are more receptive about facts on the safety and effectiveness of the vaccine from their own doctor. The involvement of doctors from similar backgrounds as the refugees or from within their communities can be highly effective in building trust levels. Trust is further strengthened by 'networks', whereby if people know that someone in their network has been vaccinated, they are less hesitant, less fearful of the vaccine, and less likely to report that they require more information about the vaccine.

Filling gaps in knowledge and addressing misinformation is still essential going forward

Providing those who are uncertain of whether to get vaccinated with simple, salient and specific knowledge, breaking down complex concepts with analogies can shift their preferences towards getting vaccinated. It is also important to establish open and transparent dialogue and communication about uncertainties, risks, and the safety of vaccination. Conspiracy theories and rumors should continue being identified and accounted for when designing communication materials through clear and evidence-based messages from trusted sources. Those who are uncertain in the hesitancy spectrum may be exposed to messages that use cognitive dissonance to rationally guide those people's decisions towards willingness to get vaccinated, recognizing the implications of not doing so. Additionally, since the beginning of the vaccine rollout, women's trust of the vaccine has constantly remained lower. Among other things, this arises from a lack of focalized information that addresses pregnancy, breastfeeding, fertility and women's reproductive health in general. As such, filling gaps in knowledge must also consider the anxieties of women towards the vaccine. Finally, given the rapidly changing situation and with more variants spreading up around the world, transparent and timely communications will be crucial to address knowledge gaps and misconceptions and adjust risk perceptions.

Using contextual messaging as well as trusted messengers are important design considerations to be accounted for in the development of communications

It is crucial to contextually inform communications, for instance, by using the most situational and context-specific figures to update refugees' perceptions about vaccine uptake among refugees in their area or community. As the research shows, there is a correlation between vaccine hesitancy and

¹⁷ Office for National Statistics (2021) Coronavirus (COVID-19) latest insights: Vaccines, <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/articles/coronaviruscovid19latestinsights/vaccines>

¹⁸ Freeman D, Loe BS, Chadwick A, Vaccari C, Waite F, Rosebrock L, Jenner L, Petit A, Lewandowsky S, Vanderslott S, Innocenti S, Larkin M, Giubilini A, Yu LM, McShane H, Pollard AJ, Lambe S. COVID-19 vaccine hesitancy in the UK: the Oxford coronavirus explanations, attitudes, and narratives survey (Oceans) II. *Psychol Med.* 2020 Dec 11:1-15. doi: 10.1017/S0033291720005188. Epub ahead of print. PMID: 33305716; PMCID: PMC7804077.

respondents' perceptions of uptake by refugees; the higher the perceptions of uptake are, the less the hesitancy is. As more and more refugees take the vaccine, it will deem important to share updated figures. The more contextualized and targeted the figures are, the more likely they will resonate with the target population. Just as the message is important, the messenger is equally relevant, so identifying trustworthy entities and individuals before developing communications is key.