

ORIGINAL ARTICLE

Recommendation for Improvement in COVID-19 Vaccine Program in Malaysia: An Online Nationwide Qualitative Survey

Hana Maizuliana Solehan, Mohd Dzulkhairi Mohd Rani, Nurul Azmawati Mohamed, Muslimah Ithnin, Abdul Rasyid Ariffien, Che Ilina Che Isahak

Faculty of Medicine and Health Sciences, Universiti Sains Islam Malaysia, Persiaran Ilmu, , 71800 Nilai, Negeri Sembilan, Malaysia.

ABSTRACT

Introduction:

Introduction: Maintaining high levels of vaccinations is important for public health success in any vaccination planning. Success requires a better understanding of the public's perceptions of diseases and consequent decisions about vaccinations. This study aims to gather exploratory qualitative data on public opinion on the Malaysian Government's COVID-19 immunization campaigns. **Methods:** Open-ended question on Google Form was advertised online between 2 to 17 December 2020. The questionnaire form was deactivated when saturation has been reached. The free text questions were analysed by qualitative thematic analysis by all authors on a Microsoft Excel spreadsheet. **Results:** Six hundred and sixty-one participants replied to the online questionnaire. Four themes emerged from the thematic analysis on suggestions for future National COVID-19 Immunisation Program. First, COVID-19 vaccine administration policy; secondly, knowledge dissemination and plan to address obstacles of public acceptances towards the vaccine proactively; thirdly, better implementation programs by the government and fourthly, using local research expertise for vaccine development and alternative medicines. Participants believe all this are essential in increasing their trust and uptake for the government's future national COVID-19 Immunisation Program. **Conclusion:** This study highlights the suggestions made by the public for the Malaysian Government. These findings will help develop education and intervention strategies for new vaccine introduction to combat the COVID-19 pandemic in Malaysia.

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Corresponding Author:

Nurul Azmawati Mohamed, PhD
Email: drnurul@usim.edu.my
Tel: +6067985002

INTRODUCTION

Immunization has been the most effective and most economical method of preventing or reducing the burden of vaccine-preventable diseases (1). Thus, the long-term solution to the current Coronavirus Disease 2019 (COVID-19) pandemic will be a globally implemented safe vaccination program with all-inclusive clinical and socio-economic benefits. Previous experience with the launch of prior mass vaccination programs has shown that careful planning is needed to ensure that both the general public and the healthcare workers are prepared(2,3). This is crucial if COVID-19 morbidity and death are to be greatly reduced. The COVID-19 herd immunity can be achieved if 60% to 75% of the population attains immunity through vaccination or infection, depending on several factors(4). This herd

immunity threshold refers to the percentage of the population that needs to be immune to an infectious disease to prevent people without immunity from interacting with an infected individual and being infected(5). Currently, developed vaccine information is insufficient to ensure broad immunological coverage and public acceptance. In addition, the vaccine must be appropriate to both the government health policymakers and the general public(6).

Vaccine procurement, distribution, deployment, and acceptance are a few of the difficulties that a nation must overcome to have a successful immunisation programme. A study showed that the National Immunization Program in Malaysia faced 3 challenges: the incongruence between the aims and implementation of the National Immunization Program, a trust deficit in the government and the population mixed views regarding the vaccine (7) A quantitative survey involving 1,159 Malaysian residents found that only 48.2% will get vaccinated if a COVID-19 vaccine were available(8). Possible side effects contributed to vaccine hesitancy include

insufficient knowledge of the vaccine, concern about the vaccine safety, efficacy and misinformation about the vaccine in the media were the barriers to get vaccinated (9–11). Low educational level and socioeconomic status were among the sociodemographic factors contributing to hesitancy (12).

To attain herd immunity, several measures should be made to overcome the obstacles of vaccine hesitancy. The government should seek advice from stakeholders, including the community members. Listening to the community may provide insight into the community's true problems and conditions. Thus, this study was conducted to explore the public's suggestion on the Malaysian Government's COVID-19 vaccination program. The qualitative research findings will provide rich data regarding future COVID-19 vaccine programs to enhance the likelihood of optimum vaccine uptake among the population. The result of this study is critical to build on that momentum and confidence to encourage swift, broad vaccine uptake as it becomes available.

MATERIALS AND METHODS

A web-based exploratory cross-sectional study was carried out from 2nd December to 17th December 2020. A group of researcher teams determined a consensus of the questionnaire's content and its design through discussion. The questionnaires in English and Malay language were developed using the Google form platform. In addition, messaging applications such as WhatsApp and Telegram and social media like Facebook and Twitter were used to share the link of electronic questionnaires to the respondents across Malaysia's 14 states. The data was collected and analysed daily, and saturation was defined as no new themes were generated from the responses (13).

Ethical approval was obtained from the Ethics Committee of Universiti Sains Islam Malaysia with the code project of USIM/JKEP/2020-126. The subjects were considered to consent their participation in this survey by volunteering to fill out the questionnaire and submit the form.

The findings were analysed using a Microsoft Excel spreadsheet. The open-ended questions were analysed by qualitative thematic analysis (14). The authors reviewed and discussed the themes and sub-themes on several occasions using investigators' triangulation to reach a consensus about the interpretation and enhance the trustworthiness of the process (15). Data sufficiency was reached after 250 responses, giving enough richness and depth of the data. However the subsequent data (251 to 661) was also analysed.

RESULTS

A total of 661 respondents completed and returned the

informed consent and the questionnaire electronically via the online survey. Of all the respondents, 369 (55.8%) were females and 292 (44.2%) males. The mean age was 41.85 (SD= 16.917). Table I summarizes the demographic characteristics of the respondents. Table II summarizes the themes and sub-themes of this survey, while Figure 1 shows the percentages of responses following the themes of recommendation by respondents.

Theme 1: COVID-19 vaccine policy

The respondents suggested that the COVID-19 vaccines shall be made mandatory to all Malaysian and foreign workers by promoting the benefit of vaccine through media. Priority should be given to high-risk groups that have higher morbidity and mortality.

Free vaccine for high-risk groups and those who can't afford. (Female, accountant, 25-year-old)

Make it mandatory for all Malaysians to be vaccinated, even if they are from the anti-vaccine groups and increase the dissemination of information on the benefits of vaccines through social media or print media. (Female, seller, 22-year-old)

Respondents belief that high-risk groups should be given priority for the COVID-19 vaccine. Among the high-risk groups proposed by respondents were front-liner or healthcare workers, political leaders & community leaders, elderly and those with comorbid conditions, and travellers.

.....additionally, politicians & leaders of the country's communities should also demonstrate the safety of the vaccine by being among the first to be vaccinated. (Male, foreign service, 76-year-old)

Due to the high number of COVID-19 cases among foreign workers in this country, respondents also suggested that the vaccine should be made mandatory for this group at the employers' cost. The respondents also suggested that COVID-19 vaccine should be taken before going to oversea trips.

Make it compulsory to non-Malaysians, especially to the factory workers whereby, their employers should bear the cost. Those who plan to go overseas must take the vaccine no matter to which country. Make it compulsory like the vaccine for pilgrims. The cost should be borne by themselves. (Female, educator, 48-year-old)

There were concerns regarding logistic issues and the vaccine's availability. The respondents suggested that the vaccines shall be available, easily accessible for all, including those in the rural area, ideally be administered in one dose.

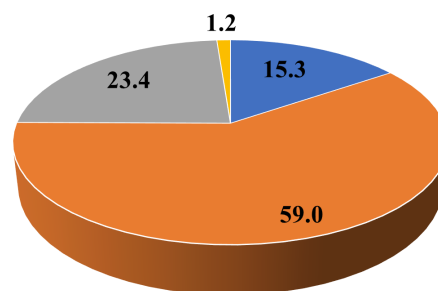
The vaccine should be given in a single dose, easy

Table 1: Demographic characteristics of the respondents (n=661)

Characteristics	n	%	
Age Group	18-19	30	4.5
	20-29	176	26.6
	30-39	94	14.2
	40-49	141	21.3
	50-59	90	13.6
	60-69	94	14.2
	Above 70	36	5.4
Gender	Male	292	44.2
	Female	369	55.8
State	Selangor	273	41.3
	WP Kuala Lumpur	106	16.0
	Johor	48	7.3
	Kelantan	36	5.4
	Perak	34	5.1
	Negeri Sembilan	32	4.8
	Terengganu	27	4.1
	Kedah	20	3.0
	Pahang	20	3.0
	Pulau Pinang	17	2.6
	Sarawak	15	2.3
	Melaka	14	2.1
	WP Putrajaya	6	0.9
	Sabah	6	0.9
Perlis	4	0.6	
WP Labuan	3	0.5	
Education	Secondary School	39	5.9
	Certificate or Diploma	235	35.6
	Degree	218	33.0
	Master /PhD	169	25.6

Table II: Summary of themes and sub-themes of recommendation for the COVID-19 vaccination program

Themes	Sub-Themes
COVID-19 vaccine policy	<ul style="list-style-type: none"> The vaccine should be compulsory for all Specific groups should be prioritized in the initial phase of the vaccination program is essential Compulsory vaccination for a specific group Vaccines should be available and accessible for all Suggestion on alternative mode of vaccines administration
COVID-19 vaccines information	<ul style="list-style-type: none"> To provide information to the public on COVID-19 vaccination benefits, risks, and supply To earn the public's confidence in COVID-19 vaccines To communicate effectively to avoid misinformation To address the anti-vaccine groups To provide more clinical trial data
Other Recommendations for government	<ul style="list-style-type: none"> To subsidize the vaccine to the public (Malaysian/ non-Malaysian) To guarantee the vaccine safety To establish independent representative bodies to monitor the vaccination program To enhance Malaysia Ministry of Health (MOH) roles and to gain public trust To adhere to current Standard Operating Procedure (SOP) and regulations To improve on the functions of MySejahtera application (a smartphone application to assist in managing COVID-19 outbreak in Malaysia) To produce documentary programs on vaccine production
Local research and alternative medicine	<ul style="list-style-type: none"> To encourage local research on development of the vaccine To conduct research on alternative local products and medicine



- COVID-19 vaccine policy
- COVID-19 vaccines information
- Other Recommendations for government
- Local research and alternative medicine

Figure 1: The percentages of responses follow the themes of recommendation by respondents (n = 661)

accessibility to the rural population. (Female, retiree, 68-year-old)

Theme 2: COVID-19 vaccines information

The available clinical trial information is limited. Furthermore, the vaccine production was rather quick and the clinical trials were done in a short period. The respondents advised the government to properly analyse and research the options before determining which vaccine can be utilised in Malaysia.

There should be longer studies for vaccine duration potency and not hasten vaccine production in less than a year study. We do not even have a vaccine for dengue / SARS / Hepatitis B yet. These diseases we have known for long enough. (Male, healthcare personal, 32-year-old)

Choose vaccines that comply with the standard procedure in testing - definitely not those that were rushed to put the vaccine into the market. (Male, healthcare personal, 69-year-old)

Regarding the COVID-19 vaccines information, the respondents recommended that the vaccine profile data should be disseminated to the public, including vaccination benefits, risks, supply and halal certification status. Various methods to disseminate the information have been suggested such as through websites, mass and social media, short messaging system (SMS), flyers and booklets.

Transparency, people need to know fully the pros and cons of taking this vaccine, especially its side effects, as well as data and tracking of vaccine recipients after injection. (Female, oil and gas personal, 27-year-old)

Not everyone uses or knows how to use a smartphone to get COVID-19 information and vaccines. Maybe provide

FAQs in flyers or booklets to help spread this important information. Can also be made in the form of cartoons for better comprehension by those who cannot read. Booklets and flyers can be used as reference material for the community. (Female, banker, 71-year-old)

According to the respondents, the anti-vaccine groups have been actively spreading false rumours regarding vaccines to the public. Respondents suggest several ways to overcome and address this group, such as taking more stern action against them by the government, suspending their social media accounts and making punitive fines. As the anti-vaccines group used religion to reject the vaccine, the respondents suggested the MOH integrate the science and Al-Quran and Sunnah to explain the importance of vaccines to the public.

Make those who are less educated understand the importance of vaccines. Furthermore, the anti-vax groups need to be eliminated from this Earth by helping people to understand the real concepts related to vaccines. (Female, student, 25-year-old)

Theme 3: Recommendation for government

There are number of subcategories that emerged under the respondents' recommendation for the government. This suggestion was either specifically for the COVID-19 vaccination programs or for preventive measures to be taken by the government to control and break the COVID-19 infection chain. The respondents suggested that the government subsidise and provide free vaccination for the frontliners, high risk group, elderly, B40 group, and even all Malaysian. There shall be an affordable price for the vaccine if it is not free.

Government to have a well-thought-out plan to distribute vaccines to the population, starting from the needy. Best to give free vaccination to all, but if the government cannot afford it, then to ensure cost is subsidised for the needy and retirees. (Female, retiree, 65-year-old)

There is concerns about the safety and the side effect of COVID-19 vaccines as this vaccine is newly developed. Thus, the respondent also recommended that the government could give a guarantee on the vaccine safety if they are taking the vaccine. This includes a written declaration by the government to be responsible for maintaining the welfare, treatment costs or anything if there are long-term effects of this vaccine.

New vaccine. So, there is still no confidence in the effectiveness of the vaccine. There needs to be an assurance from the authorities. For example, a written declaration if there is a long-term effect, the relevant parties (MOH or government) will be responsible for maintaining the welfare, treatment costs or anything that involves long-term effects of this vaccine. (Female,

housewife, 39-year-old)

For the current standard operating procedures (SOP) and new regulations in new norms set by the Malaysian Government, the respondent has made several recommendations to strengthen the regulation. They recommended that the government standardize the quarantine policy in every state. The Enhanced Movement Control Order (EMCO) is declared in the locality as soon as a victim is identified to protect other people in the area.

Standardize the policy of quarantine in every state. (Male, defence, 31-year-old)

Enforcement of SOP is very important to make people aware that they are starting to get complacent. Monitor and take action on social media that spread false information. (Male, law, 54-year-old)

The respondents recommended that the government produces documentary programs on the COVID-19, COVID-19 sufferers and their families, and the COVID-19 vaccine development process.

Please make a special documentary about COVID sufferers and their families. (Male, reporter, 35-year-old)

Produce documentaries on COVID-19 and the process of preparing the COVID-19 vaccine (Female, student, 25-year-old)

Theme 4: Local research and alternative medicine

Two subcategories emerged under theme four. The respondents suggested that Malaysia shall utilize local research expertise for future research on vaccine development and try alternative methods instead of vaccine, to combat COVID-19.

I recommend that medical scholars in Malaysia do their R&D on vaccines. Malaysia is a very rich country, surely the government has an allocation to produce its own vaccine. (Male, retail, 32-year-old)

Ensure that local studies and evaluations are made to confirm the effectiveness of the vaccine and its side effects. (Male, agriculture, 70-year-old)

Secondly, the respondents suggest using other alternatives methods other than vaccines to boost immunity. This includes the use of vitamins, honey and (Fennel flower) and other alternative medical methods than a vaccine to overcome COVID-19 virus.

Find alternative treatments using honey and habbatus sauda first. That is the recommendation of Al Quran and sunnah. (Male, researcher, 33-year-old)

DISCUSSION

This qualitative exploratory study has come up with several recommendations from the respondents. First, COVID-19 vaccine administration policy; secondly, knowledge dissemination and plan to address obstacles of public acceptances towards the vaccine proactively; thirdly, better implementation programs by the government and fourthly, using local research expertise for vaccine development and alternative medicines.

Mandatory vaccination was associated with lower vaccine-preventable diseases (VPDs) with mandatory vaccination without nonmedical exemptions, thus indirectly protecting populations and the public health structure (1, 16). The respondents' recommendations to flatten the curve of COVID-19 and achieve herd immunity in the population make the National COVID-19 Immunization Program compulsory for populations. Besides, in the early stage of vaccination programs, the respondents suggested the vaccine COVID-19 shall be administered to the healthcare workers, front-liners, and those at the higher risks, including the co-morbid and elderly. Vaccination also shall be made compulsory for travellers from East and West Malaysian, from overseas and those are going for pilgrims to reduce the cross-border infections risks. This is in line with other studies, which reported higher acceptance among this group of individuals (9,17,18).

However, to make the vaccination mandatory for all, the vaccine shall be made available and accessible. Thus, the strategies shall be made from the start as Malaysia's government plans in National COVID-19 Immunization Program to administer the vaccine to the population starting February 2021 (19). Nevertheless, this remains a concern as most of the vaccines currently developed, or some have been approved, requiring at least second booster doses, which may increase the participants' drop-out rate. Data on immunization from the 2016 National Health and Morbidity Survey reported an overall complete immunization coverage in the Program on Immunization among children was 86.4% in Malaysia (20). According to the World Health Organization (WHO) criteria, the present study immunization coverage of 86.4% is still unsatisfactory and lower than 95% or more coverage set by WHO (21). High drop-out rates of the second and third doses of vaccination contribute to the low rates of complete immunization. Additionally, an issue was raised among respondents on ensuring that vulnerable populations have access to the vaccine, including those living in rural and minority groups (22,24). Thus, the government must convene, collaborate, and collectively tackle the problem of verifying vaccine coverage in the National COVID-19 Immunization Program.

For the COVID-19 vaccines information, many respondents stated that the National COVID-19

Immunization Program information is limited. This influences the acceptance of the vaccine as the previous study reported concern on the safety profile, efficacy and limited trial data on this newness and rapid development of the vaccine, which makes them hesitate to receive the COVID-19 vaccines (24,25). Every Malaysian shall be receiving all the required information on the clinical trial data, COVID-19 vaccination benefits, risks, and supply to their community to reduce the negative perception as there is a concern about negative news and anti-vaccine individuals (23).

Several respondents suggested that the information should be disseminated to all levels of the community and society. The use of traditional and modern technology shall be maximized to ensure the information reaches the community. This includes using multi-language layman's terms in flyers, booklets, advertisements, cartoons and animations, including engaging influential individuals and religious leaders in the campaigns to clarify the fake news and controversies, especially the halal issue (26). Increasing their knowledge will increase vaccine acceptance, reduce misinformation and stigma (22).

The Malaysian government declared the COVID-19 vaccine would be given free for all citizens in Malaysian (Prime Minister's Office, 2021). This subsidiary program is as per the National COVID-19 Immunization Program plan. Many of the respondents raised concern over the rapid development of COVID-19 vaccines. This similar concern was also raised in a previous study which caused vaccine hesitation (27). Safety and adverse reaction from the vaccine also worry the respondents. This is also one factor of vaccine hesitancy among Malaysians (29). They recommended the government to provide a safety guarantee and compensation or reparation if there is any unwanted adverse effect either in short- or long-term effects from the vaccination.

Since the beginning of the COVID-19 pandemic, the Ministry of Health (MOH) Malaysia has played a significant role in providing information on the vaccines to the public. Thus, many citizens only believed and trusted information given by MOH. Besides the daily update on Malaysia's new case statistics in mainstream television and MOH's official social media platforms, the information on COVID-19 and vaccination programs are disseminated through the official website <http://COVID-19.moh.gov.my/>. Nevertheless, some of the respondents were unaware of this official website.

MySejahtera is an application developed by the Malaysian government to help track its COVID-19 outbreak by encouraging users to determine their health risk against COVID-19 (29). This application also provides the MOH requisite details to prepare for early and successful countermeasures. Governments worldwide also take similar measures to assist health

officials in tracking down exposures after an infected individual is identified (30, 31). Respondents give some suggestions to the government to optimize the use of MySejahtera application. The platform can be used to disseminate easy and understandable information on COVID-19 and shall be made compulsory.

Moreover, under the recommendation for government theme, respondents suggesting a documentary programs production present the issues and topics of the COVID-19 pandemic, including the COVID-19 sufferers and their families and the COVID-19 vaccine development process. It is also suggested by Kapoor & Kaufman (32), personal, community, and national levels can be cultivated and expressed creativity to make meaning during COVID-19. Doing so allows engagement in creativity to buffer against the negative effects of living through the pandemic. Documentary programmed production can be an essential tool to deliver the COVID-19 prevention strategy and future National COVID-19 Immunization Program message.

Respondents also suggest applying local research expertise in public health and developing a vaccine for COVID-19. Previous studies have reported that the factor influencing vaccine hesitancy was due to the country of the vaccine origin (28). Among respondents, they are also suggesting the use of alternative medicines. A belief that traditional complementary and alternative medicine (TCAM) use is safer than taking vaccines were identified as reason for refusing to vaccinate among Malaysia(27). Previous reports show the common use of TCAM to remedy a wide range of illnesses. However, it is interesting to note that the present TCAM has also been extended as an alternative to vaccination (33, 34). Thus, this issue shall be tackled with caution by the public health system as it might increase the individual and community's hesitation in receiving the future COVID-19 vaccine.

This study has several limitations. First, this study focused on the open-ended response from the online survey platforms. Therefore, we did not follow and examine their opinion deeper as in the in-depth face-to-face interview. Second, their suggestion may keep changing over time because of the rapid changes in information related to COVID-19. Finally, there may be variation in belief levels in the misinformation among the public. Thus, it was beyond the present study's scope to determine the number of people who believed in any of the respondents' suggestions.

CONCLUSION

In ensuring the deadly pandemics of COVID-19 end, these vaccine-preventable diseases can be tackled through four main areas. First, COVID-19 vaccine administration policy; secondly, knowledge dissemination and plan to address obstacles of public

acceptances towards the vaccine proactively; thirdly, better implementation programs by the government and fourthly, using local research expertise for vaccine development and alternative medicine. This study was able to gather evidence that can be used by stakeholders and the government on the future National COVID-19 Immunization Program. The suggestion made by the public shall be taken into account considering that they are the population that will be participating in the immunization program so the herd immunity can be achieved. The effectiveness of this vaccination program, therefore, depends on ensuring a strong public and private vaccine delivery system, providing all the details required to gain the confidence of the community, engaging and correcting myths about the vaccine, enforcing the prevention of anti-vaccine misinformation, or transmitting unverified or false news information while ensuring adequate surveillance of the disease and coverage of vaccines. The success in eradicating COVID-19 in Malaysia and globally will be a permanent gift from this generation to all future ones.

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