

Public Willingness to Participate and Their Concerns with Malaysian COVID-19 Vaccination Programme: Influence of COVID-19 Vaccination Hotline Service

Shing Chyi Loo^{1*}, Chuo Yew Ting², Luqman Nulhakim bin Said³, Neva Yen Chern Lee⁴

¹Sarawak State Health Department, Pharmacy Enforcement Branch, Jalan Diplomatik, Off Jalan Bako, 93050, Sarawak Malaysia

²Sarawak State Health Department, Pharmacy Practice and Development Branch, Jalan Diplomatik, Off Jalan Bako, 93050 Sarawak, Malaysia.

³Sarawak State Health Department, Pharmacy Management Branch, Jalan Diplomatik, Off Jalan Bako, 93050 Sarawak, Malaysia

⁴Sarawak State Health Department, Pharmacy Enforcement Branch (Kuching), Kuching General Hospital, Jalan Hospital, 93586, Sarawak Malaysia

Correspondence to: Shing Chyi Loo
weekshing@gmail.com

Accepted: 11 October 2023

ABSTRACT

Introduction:

This study assessed public willingness to participate and concerns towards the Malaysian COVID-19 Vaccination Programme. Additionally, it evaluated the change in public willingness to participate before and after having their enquiries been addressed through calling the COVID-19 Vaccination Hotline.

Methods:

This was a cross-sectional study that analysed the data extracted from COVID-19 vaccination hotline service enquiry records spanning the initiation of the vaccination programme (February 25, 2021, to April 18, 2021). Public willingness to participate was measured by asking the caller their willingness to receive COVID-19 vaccination, with score ranging from 1-10 (1 indicates extremely not willing while 10 indicates extremely willing). Score above 7 indicates high willingness to participate. Besides, they were asked about the motivating factors towards their willingness to accept COVID-19 vaccination. Thematic analysis was used to identify the themes related to the motivating factors and concerns with the COVID-19 vaccination raised by the hotline callers.

Results:

A total of 917 callers enquired through the COVID-19 vaccination hotline during the study period. The majority of callers (78.0%) expressed willingness to participate in the vaccination programme before their enquiries were addressed. Notably, the mean willingness score exhibited a significant increase from 8.68 ± 1.95 to 8.83 ± 1.87 following the resolution of callers' enquiries ($P<0.001$). Predominant concerns, constituting 52.9% of enquiries, centred around vaccination registration and vaccination scheduling. The study identified three main factors of public willingness on receiving vaccination: personal factors (63.9%), public health awareness (20.9%), and family factors (14.0%).

Conclusion:

This research contributes valuable insights for refining vaccination campaign strategies and advocating a proactive approach to addressing public concerns.

Keywords:

Willingness, concern, COVID-19 vaccination programme, hotline

INTRODUCTION

The successful eradication of COVID-19 pandemic through vaccination requires the attainment of herd immunity, ideally achieved with an 80% vaccination coverage.¹⁻³ Public willingness and concerns play crucial roles in determining the success of vaccination programmes.⁴ In Malaysia, the government has rolled out the COVID-19 vaccination programme in three phases.²⁻⁵ The programme targeted frontline workers, the elderly, high-risk groups, and the general public aged 18 years or older.²⁻⁶

Despite the acknowledged importance of vaccination, it remains non-compulsory in Malaysia, permitting individuals, including frontline workers, to decide when to receive the vaccine based on their willingness. Mistrust towards vaccines presents a substantial challenge in achieving the requisite vaccination coverage for herd immunity.⁴ Available evidence suggests that high-risk groups, women, individuals living with children, those with poor compliance to COVID-19 guidelines, a preference for natural immunity, exposure to inconsistent public health messages, and individuals with low confidence in government and science exhibit a negative attitude towards vaccination and are reluctant to get vaccinated.⁴

To address public concerns and advocate for COVID-19 vaccination, the Sarawak State Health Department has launched a COVID-19 Vaccine Hotline Service. Comprising medical officers, pharmacists, and nurses, the hotline seeks to address the public concerns related to the COVID-19 vaccination programme. Our study aimed to comprehend public willingness toward the COVID-19 vaccination programme, pinpoint concerns hindering vaccine acceptance, explore motivating factors encouraging vaccination, and assess the influence of hotline services on callers' willingness to receive the COVID-19 vaccine.

METHODS**Study Design**

This cross-sectional study was conducted, encompassing all hotline enquiries from the commencement of the vaccination programme until the end of the first-phase vaccination, dated from February 25, 2021, to April 18, 2021. Records with incomplete data regarding willingness towards COVID-19 vaccination were excluded from the study.

Data Collection and Tool

In the study, the operators received enquiries and documented them on hotline enquiry records. Some hotline enquiries may have encompassed more than one enquiry or concern. All enquiries were classified into administrative-related, health-related, vaccine-related and non-vaccine-related.

Information on motivating factors was gathered through open-ended questions. Subsequently, these factors were categorized into personal factor, family factor, public health awareness, influenced by friends or peers, and others.

The willingness to accept COVID-19 vaccination was assessed using a scale ranging from 1-10 (1 is extremely unwilling and 10 is extremely willing) and was classified into low, moderate, and high willingness levels. Scores below 5 indicated low willingness level, scores range from 5 to 7 indicated moderate willingness level and scores higher than 7 indicated a high willingness level. The willingness scores were collected before and after the enquiries were addressed.

All data were extracted into Microsoft Excel for analysis. The dataset comprised demographic data including name, age, gender, caller location, caller category, contact number, willingness to receive COVID-19 vaccines, and motivating factors.

Statistical Analysis

Descriptive statistics in number and percentage were computed to report the willingness, concerns, and motivating factors towards COVID-19 vaccination. Paired t-test was employed to determine the change in the callers' willingness for vaccination before and after the resolution of their enquiries.

RESULTS

A total of 1133 enquiries were received from 920 callers during the study period. Three callers with 4 enquiries were excluded from the study as operators were unable to obtain willingness scores from the callers, resulting in missing information on their willingness. The mean age of the callers was 46.5 years old. Meanwhile, the majority of the callers were members of the non-medical staff, female and residing in the Kuching area. The majority of the callers exhibited a high willingness level (78.0%) (Table 1).

Table 2 presents categories of common concerns of the callers. The majority of these concerns were administrative-related (78.1%), with callers expressing significant interest in obtaining more information about the registration and schedule for vaccination (52.9%).

In this study, 449 enquiry records were analysed to identify motivating factors influencing vaccination acceptance. Among all the factors cited (n=535) in the included enquiry records, personal factors (for own health/ future/ work/ study/ safety/ travel) emerged as the primary motivating factor that encouraged callers to accept vaccination. Table 3 illustrates the findings on this matter.

The study revealed that the score of willingness towards COVID-19 vaccination increased from 8.68 ± 1.95 to 8.83 ± 1.87 , by a difference of 0.14 (95% CI: 0.10, 0.18) after the resolution of their enquiries, and this change was statistically significant ($P<0.001$).

Table 1. Demographic Data (n=917)

Demographic Data	Mean (SD)	n (%)
Age (Year)		
<18		1 (0.1)
18-29		99 (10.8)
30-39	46.5	212 (23.1)
40-49	(1.43)	182 (19.8)
50-59		123 (13.4)
≥ 60		196 (21.4)
Missing		104 (11.3)
Gender		
Female		536 (58.5)
Male		381 (41.5)
Caller Category		
Non-medical professional		798 (87.0)
Medical professional		119 (13.0)
Caller Location		
Kuching		668 (72.8)
Sibu		69 (7.5)
Bintulu		27 (2.9)
Miri		53 (5.8)
Others		89 (9.7)
Missing		11 (1.2)
Willingness for COVID-19		
Vaccination before enquiries were addressed		
<5 (Low)		18 (2.0)
5-7 (Moderate)		184 (20.1)
>7 (High)		715 (78.0)
Willingness for COVID-19		
Vaccination after enquiries were addressed		
<5 (Low)		13 (1.4)
5-7 (Moderate)		175 (19.1)
>7 (High)		729 (79.5)

* SD=Standard Deviation;

Medical professional including doctors, pharmacists, nurses, Medical Assistants, dentists, and others allied health professional

Table 2. Common concerns in the COVID-19 hotline enquiry records (n=1129)

Types of Concerns	n (%)
Administrative-related enquiries	882 (78.1)
Registration for vaccination	401 (35.5)
Schedule for vaccination	196 (17.4)
Location for vaccination	65 (5.8)
Proof of vaccination	8 (0.7)
Brand of vaccine	18 (1.6)
Eligibility	47 (4.2)
Technical issues	60 (5.3)
“MySejahtera” application	87 (7.7)
Health-related enquiries*	116 (10.3)
Personal health condition	84 (7.4)
Family members health condition	32 (2.8)
Non vaccine-related enquiries	99 (8.8)
Vaccine-related enquiries	32 (2.8)
Safety	26 (2.3)
Efficacy	6 (0.5)
Total	1129 (100.0)

* Health-related enquiries refer to any contraindications with their medical and medication history

DISCUSSION

A notable 87.0% of hotline callers were non-medical professionals, with an encouraging 78.0% expressing high willingness to accept the COVID-19 vaccination. This aligns with national trends, as another study in Malaysia reported an overall vaccination acceptance rate of 83.3%.⁷

While the COVID-19 vaccination hotline service played a role in improving willingness of the callers, such influence appears limited. The proliferation of misinformation, particularly regarding vaccine side effects especially among the elderly, has fuelled public anxiety.⁸ Perceptions of vaccine unimportance also contributed to the discouragement of vaccination.⁴ Therefore, addressing public anxiety through the dissemination of information on vaccine safety and its importance is crucial for increasing vaccination uptake.

In terms of concerns with COVID-19 vaccination, administrative issues (78.1%) took precedence in public enquiries, deviating from prior research on safety and efficacy concerns.⁷ In a previous study, major concerns included concerns on vaccine side effects (95.8%), safety (84.7%), and the effectiveness of new vaccines (63.6%).⁷ The timing of this study, conducted at the onset of the COVID-19 vaccination programme, likely contributed to the lack of enquiries on the vaccine safety and efficacy (2.8%) as initial concerns on these matters were promptly addressed by the Ministry of Health Malaysia.

Enquiries during the initial phase predominantly centred around vaccination registration and scheduling, with a noteworthy emphasis on registering dependents. Challenges encountered with the MySejahtera mobile application, especially among the elderly, highlight the necessity for user-friendly platforms and standardised registration processes.

Table 3. Motivating factor that encouraged callers to accept vaccination (n=535)

Variables	n (%)
Personal factor (for own health/future/work/study/safety/travel)	342 (63.9)
Family factor (requested by family members, for the family safety/protection)	75 (14.0)
Public health awareness (government promotion to protect the whole population)	112 (20.9)
Influenced by friends or peers (followed the majority or others' decision)	4 (0.7)
Others	2 (0.4)
Total	535 (100.0)

In Malaysia, the MySejahtera platform was not the exclusive avenue for COVID-19 vaccination registration. Additional channels, including online registration, hotline registration, and registration facilitated by local leaders, were also available. Regrettably, the existence of multiple registration methods has resulted in the unintended consequences of duplicated registrations, leading to delays in the vaccination process. Consequently, the public has raised enquiries regarding eligibility and vaccination schedules, highlighting a pressing need for standardisation and synchronisation of the registration process. Furthermore, there is a significant imperative to disseminate comprehensive information on the registration procedures to the public.

Strengths and Limitations

This study extends beyond evaluating the willingness and concerns of COVID-19 hotline callers solely related to the COVID-19 vaccines, offering a comprehensive exploration of their perspectives on the national vaccination programme. The study also contributes to the understanding of the multifaceted nature of vaccine hesitancy and provides a foundation for refining communication strategies and addressing public concerns to foster greater acceptance of COVID-19 vaccinations.

However, it is essential to acknowledge certain limitations inherent in this study. There is a potential sampling bias, as individuals who actively seek information by calling in for enquiries might already be predisposed to a willingness to accept vaccination. This raises concerns about the generalisability of the findings to the broader public. The geographical limitation to callers within Sarawak further restricts the study's external validity, preventing a comprehensive representation of the Malaysian population. Moreover, the observed increase in willingness, while statistically significant, appears marginal, making it challenging to ascertain the true effectiveness and impact of the hotlines in influencing callers' attitudes toward vaccination.

CONCLUSION

Most callers demonstrated high willingness to receive COVID-19 vaccinations, and the COVID-19 vaccination hotline service played a role in slightly increasing this inclination, though the impact was minimal. Recognizing the centrality of individual considerations in this context underscores the importance of tailored communication strategies and personalized information dissemination in addressing specific concerns and enhancing overall vaccine acceptance.

ACKNOWLEDGEMENT

The authors would like to extend their highest gratitude to the Director General of Health Malaysia for the permission to publish this article.

CONFLICT OF INTEREST

The authors declare no conflict of interests.

FUNDING

This study received no external funding.

ETHICAL APPROVAL

This study was registered with ID NMRR-21-313-58613; (10) KKM/NIHSEC/P21-474 and was approved by the Medical Research Ethics Committee (MREC).

REFERENCES

1. Largent EA, Persad G, Sangenito S, Glickman A, Boyle C, Emanuel EJ. US Public Attitudes Toward COVID-19 Vaccine Mandates. *JAMA*. 2020; 3:12.
2. National Covid-19 Immunisation Programme. The Secretariat of The Special Committee for Ensuring Access to Covid-19 Vaccine Supply. [Internet] 2021 [cited 2021 Jun 26] Available from: https://www.vaksincovid.gov.my/upload/media/National_COVID-19_Immunisation_Programme_English.pdf
3. Malaysia starts COVID vaccines in crucial week for Asian jabs. [Internet] 2021 [cited 2021 Feb 25] Available from: <https://asia.nikkei.com/Spotlight/Coronavirus/Malaysia-starts-COVID-vaccines-in-crucial-week-for-Asian-jabs>
4. Paul E, Steptoe A, Fancourt D. Attitudes towards vaccines and intention to vaccinate against COVID-19: Implications for public health communications. *Lancet Reg Health Eur*. 2021; 1:100012.
5. Vaccination in three phases. [Internet] 2021 [cited 2021 Feb 25] Available from: <https://www.freemalaysiatoday.com/category/nation/2021/02/04/vaccination-in-three-phases-says-muhyiddin/>
6. Malaysia kicks off National Covid-19 Immunisation Programme tomorrow [Internet] 2021 [cited 2021 Feb 25] Available from: <https://www.nst.com.my/news/nation/2021/02/668383/v-day-malaysia-kicks-national-covid-19-immunisation-programme-tomorrow>.
7. Alwi SARS, Rafidah E, Zurraini A, Juslina O, Brohi IB, Lukas S. A survey on COVID-19 vaccine acceptance and concern among Malaysians. *BMC Public Health*. 2021;21(1):1129.
8. Concerns over low Covid-19 vaccination sign-up rate among Malaysia's senior citizens ahead of 2nd phase [Internet] 2021 [cited 2021 Jun 11] Available from: <https://www.straitstimes.com/asia/se-asia/concerns-emerge-over-low-sign-up-rate-among-senior-citizens-as-malaysia-prepares-2nd>