

COVID-19 Vaccine Hesitancy in Kedah, Malaysia: A Qualitative Study

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Abstract— Background: When a pandemic hits, creating herd immunity would be the best public health measure available where it takes a minimum amount of the population to be infected and healed for the strategy to work. However, letting an outbreak in a large-scale population take place and resolve naturally would be a catastrophic event. Vaccination has allowed the strategy to work similarly, with way lesser risk posed to the population. Since the COVID-19 vaccine is made available in 2021, many countries in the world have started their vaccination program, aiming to immunize as many of their citizens, to curb the infections. Even so, getting everyone on board is a challenge, as quite a number are hesitant towards the vaccine. **Material and Methods:** This study explores the factors of hesitancy toward the COVID-19 vaccine among the Malaysian population, using an in-depth interview method. The factors were grouped based on the Vaccine Hesitancy Determinant Matrix of the SAGE Working Group. **Results:** The study identified factors contributing to hesitancy consisting of contextual influences such as low education level and socioeconomic status. Misguided understanding of COVID-19 is another glaring factor since the pieces of information were collected from various sources such as peers, mass media, and social media platforms. Also, there were concerns over the safety, efficacy, and side effects of the vaccine itself considering that the vaccine is still in its infancy. Other isolated factors include lack of trust in the rulers and difficulty with accessibility and transportation to vaccination centers. **Conclusion:** This study provides an insight into the underlying cause of vaccination hesitancy which could be useful for relevant authorities in making sound planning and decision in tackling the issue.

Keywords— COVID-19 Vaccine; Hesitancy; Malaysia.

I. INTRODUCTION

COVID-19 is a novel strain of coronavirus first identified in Wuhan City, Hubei Province, China in December 2019 and has since spread rapidly across the globe, causing a pandemic. To date, more than 400 million infections recorded, which have claimed about 6 million lives. Vaccine, amidst other public health measures taken to overcome this outbreak, took about a year in the pipeline before it was validated and approved by WHO for human use. Since then, almost 11 billion vaccine doses have been administered worldwide [1]. In Malaysia, the first COVID-19 infection was first identified on 4th February 2020, involving the local citizen [2]. Since then, the infection numbers in the country has reached four million with more than 34000 death reported. In line with the global effort to control the outbreak, Malaysia has launched The National COVID-19 Immunisation Programme in February 2021, to have at least 80 percent of its population being vaccinated. The program offers voluntary uptake of the COVID-19 vaccine free of charge for both citizens and non-citizens above 18 years old residing in the country. Up to February 2022, 79 percent of the residents have completed at least two doses of the vaccine [3]. Kedah is one of the states located in the northern region of peninsular Malaysia severely hit by the pandemic, where it used to report quite a high number of daily cases i.e. 1000 to 3000 cases per day [4]. The state, however, recorded that only 72.1 percent of its residents have finished at least two dosages of the COVID-19 vaccination by February 2022, a year after The National COVID-19 Immunisation Programme began [5]. For the record, Kedah is known as the top-ranking state in the country in terms of vaccine refusal among the population[6], [7].

The presence of the COVID-19 vaccine provides hope for a return to normalcy, and there is a need to vaccinate as many populations in the world to reduce the number of new infections. However, to achieve a sufficient number of the population being vaccinated against COVID-19, vaccine hesitancy remains the main threat [8]. Vaccine hesitancy is defined as refusal, reluctance, and deferment in taking vaccines from provided vaccination services [9]. SAGE Working Group on Vaccine Hesitancy (WG) has identified the “3 Cs” model that confirmed the complexity and determinants of vaccine hesitancy. The model consists of complacency, confidence, and convenience [10]. Complacency exists when an individual believes that taking a vaccine at the time is not crucial. Confidence was defined as trust in the vaccine and the systems that surrounded it, beginning with vaccine production and delivery. Convenience in vaccine hesitancy was described as access by an individual to the vaccine services available [9], [11]. SAGE Working Group has developed the Vaccine Hesitancy Determinant Matrix, in which factors are grouped into three categories: i) contextual, ii) individual and group, and iii) vaccine/vaccination-specific influences. Contextual influences include all socio-cultural, environmental, health system, institutional, economic, or political factors. Individual and group factors arise from the personal perception of the vaccine or influences from the social/peer environment. Vaccine/vaccination-specific influences were directly related to vaccines or vaccination.

Many studies explored acceptance towards COVID-19 vaccine, with most of them were conducted using survey questionnaires to collect data from the respondent and the result was varied across time and regions [12]–[15]. To our knowledge, none of these studies addresses the aspect of

hesitancy toward the vaccination in-depth, particularly using the qualitative method. In this regard, we aim to identify the factors that influence the hesitancy to vaccination among the population in Kedah as well as their understanding of COVID-19 which could help assist the relevant authority in planning the strategy to tackle this situation.

II. METHODS

Study design and setting

This is a qualitative study using a semi-structured interview format to explore the reasons for hesitancy toward COVID-19 vaccination among delayed vaccination recipients attending Hospital Sultanah Bahiyah (HSB). HSB is a government-based tertiary referral hospital that has been selected as one of Malaysia's vaccination administration centers, located in Alor Setar the capital city of state Kedah.

Participants

Individuals over the age of 18 who received the first dose of the vaccine after December 2021 and were able to communicate in Bahasa Malaysia (a national language) or English language were selected based on HSB's vaccination record using purposive sampling.

Data collection

A semi-structured guide was used during the interview process. The guideline was developed based on the information obtained from the consultant and trained medical doctor in Research Department and findings from the literature review. A pilot interview was conducted with several people who were hesitant to receive the COVID-19 vaccination to refine the interview questions before the real sessions begin. Because of the pandemic situation, the authors have decided to conduct the interviews through a telephone call to abide by restrictions implied by the government authority and avoid any risk of viral transmission to the participants. The interview session was arranged following the participants' availability and time. The first author approached the eligible participants via phone call and briefed them on the objectives and methods of the study. Any queries and concerns were answered accordingly before verbal consent taking. All interview sessions were conducted by the first author, assisted by the second author who helped with notes taking during each session. Each interview session lasted about 10 to 15 minutes. All interviews were audiotaped, transcribed verbatim, and translated before data analysis. No repeated interviews were carried out. The interview sessions were discontinued when the authors found that the study has reached saturation points and no new information was heard from the participants.

Data analysis

Data analysis was conducted using the thematic analysis method. The authors read the translated interviews texts to familiarise themselves with the participants' responses. Codes were developed by similar points found in the texts. All codes

were collated to form themes. The authors verified the consistency of the themes with initial data by continuous review. The concluded themes that suit the outcome of interest were presented in the report. The consolidated criterion for reporting qualitative research (COREQ) was used to report the methods and findings of this study.

III. ETHICAL STATEMENT

This study was approved by the Medical and Ethics Committee, Ministry of Health Malaysia (NMRR ID-21-02026-AKX).

IV. RESULTS

A total of 20 participants were interviewed in this study. One of the participants withdrew consent while the other was able to complete the interview sessions. The majority of the participants were female and of Malay ethnicity, with educational levels up to secondary school and married. A summary of the demographic characteristic is shown in Table 1.

A. Understanding of COVID-19 Vaccination

It has been almost two years since the first COVID-19 vaccine has been approved for use in humans. However, the understanding of the vaccine is scant among the community, especially in Kedah. Most of the reported resources were from social media platforms.

"COVID-19 vaccine can avoid you from getting COVID. I got the info from the social media and friends" – Participant #06

"COVID-19 vaccine can reduce the symptoms. I heard from friends and family members" – Participant #12

"You can be safe from COVID if taking the vaccine, and if you get infected, you still can be cured. I remembered one of my family members just died because of COVID, he didn't get a chance to get vaccinated at that time" – Participant #15

Some of the participants had a deeper understanding of the COVID-19 vaccine. Some of their quotes were as follows:

"COVID-19 vaccine is used to boost our immune system to the virus. I got the info from the social media and colleague" – Participant #01

"Taking the vaccine can avoid me from getting COVID-19 and will reduce the symptoms if infected. I knew this from the hospital staff and Facebook" – Participant #04

"Vaccine is one of the methods to reduce the chance of getting an infectious disease. COVID-19 vaccine is to reduce the chance of getting COVID-19 and if you did; the symptoms you are getting won't be serious. I heard this from television-by doctors in a forum" – Participant #16

B. Hesitancy to take the COVID vaccine

One of the reasons identified was their doubt about the effectiveness and side effects.

TABLE 1: Summary of the socio-demographic characteristic of the participants

Patient code	Age (years)	Gender	Ethnicity	Comorbid	Level of education	Occupation	Marital status
#01	20	Female	Indian	No	Tertiary	Student	Single
#02	20	Female	Malay	No	Secondary	Unemployed	Single
#03	20	Female	Indian	No	Tertiary	Student	Single
#04	24	Male	Malay	No	Secondary	Self-employed	Single
#05	46	Male	Malay	No	Secondary	Mechanic	Married
#06	26	Male	Malay	No	Secondary	Lorry driver	Single
#07	63	Male	Malay	Yes	Primary	Labour	Married
#08	52	Male	Malay	Yes	Primary	Labour	Married
#09	33	Male	Malay	No	Primary	Self-employed	Single
#10	45	Female	Malay	Yes	Secondary	Housewife	Married
#11	36	Female	Chinese	Yes	Secondary	Housewife	Married
#12	50	Female	Malay	Yes	Secondary	Housewife	Married
#13	58	Female	Malay	Yes	Secondary	Housewife	Married
#14	26	Female	Malay	No	Secondary	Café owner	Married
#15	49	Female	Malay	No	Secondary	Housewife	Married
#16	30	Female	Malay	No	Tertiary	Teacher	Married
#17	22	Female	Malay	No	Secondary	Housewife	Married
#18	53	Female	Malay	Yes	Primary	Hawker	Married
#19	60	Female	Malay	Yes	Secondary	Housewife	Married

“Initially they wanted to give me Sinovac but I refused. I heard it is not that effective compared to Pfizer. I just wanted to get Pfizer”- Participant #01

“My parent just not allow me to take the vaccine, because it’s still new and we doubt about the effectiveness and side effects”- Participant #03

“I got phobia to the needle, but it getting worse when I heard there were people died after vaccination”- Participant #04

Several participants with underlying medical conditions expressed their concern about the side effects of post-vaccination:

“I had breast cancer. I’m afraid of the side effects as it may interact with my condition”- Participant #10

“I got kidney failure and am currently on hemodialysis. I’m scared of the side effect if it gets my condition worst” – Participant #13

“Initially I’ve already registered for the vaccination. Then I found out that I’m pregnant. I am afraid if anything happens to my baby as we can’t see the effect. So I’m withholding till delivery”-Participant #16

“I breastfeed my son, I’m scared if the vaccine may go to my son through the breast milk and he got the side effects”- Participant #17

Some participants thought that the COVID-19 vaccination is just an experimental project as the quote was:

“This vaccine is some experimental done to the people and we are just the guinea pigs. I also heard lots of negative feedback from the receivers. The effect on the vaccination program is bad to the community relationship, they boycott

each other and sometimes became bias to those who are not vaccinated”- Participant #02

“The government is taking advantage of us, the vaccine is not ready to be used yet. They just tested on us” – Participant #19

Some of the participants claimed that they live away from the vaccination center and found it difficult to go to the center because of transportation problems. Going and waiting at the vaccination center is also not convenient for them.

“I live in the rural area, I don’t have any transport and it takes me hours just to arrive at the vaccination center, so I delayed and find the correct time to go”- Participant #07

“I’m a pauper and do not have any transport to move around. I need help from a friend to take me to the vaccination center”- Participant #08

“I went to the vaccination center earlier of the year. After long waiting, the staff there told me that the vaccine was already out of stock. They asked me to come again tomorrow. I get mad and frustrated to come again” – Participant #09

“From my observation, I found a lot of people coming to the vaccination center and waiting too long. I don’t have time for that”- Participant #18

V. DISCUSSION

The first batch of Malaysians received the vaccine was at the end of February 2021. This involved both medical and non-medical personnel working on the frontline of the pandemic, followed by the remaining citizens and non-citizens starting in April 2021. However, all participants in this study received their first dose of the vaccine in December 2021, about nine months delayed since the launch of the National COVID-19 Vaccination Program. A study conducted before

the initiation of the vaccination program in the country found that one-third of the respondents refused to get vaccinated [13]. Whereas in the United States and Turkey, it was reported that almost 30% of the respondents refuse and are hesitant to get vaccination [16], [17].

Looking at the demographics of the study participant, the majority were of Malay ethnic, female, and belongs to a younger age group, with low to middle education level as well as low socioeconomic status. These are the contextual influences of hesitancy as described by the SAGE Working Group on Vaccine Hesitancy Determinant Matrix and a similar finding was reported in other studies [11], [11], [18]. This study also found that the ambiguous understanding mainly came from respondents who are low in education level, socioeconomic status, and health literacy which is consistent with previous studies conducted in the country [13], [14].

As expected, most of the study participants obtained information regarding COVID-19 vaccination from peers and mass media, especially social media platforms. Pieces of information gathered from these resources could lead to vague perceptions toward the COVID-19 vaccine which is described by the second category of hesitancy i.e. individual and group influences. Several studies reported that misinformation, biased and fake news spreads more rapidly on social media compared to authentic sources [19], [20]. The government had imposed an emergency law to abate the dissemination of this fake news, particularly on the counterfeit side effect reported by irresponsible parties (“Malaysia Imposes Emergency Law to Clamp Down on COVID-19 Fake News,” 2021). Some participants learned the experience of taking the COVID-19 vaccine from others which contributed to the issue as well, whereby the respondent declared that they felt startled after knowing some died after taking the vaccine. This finding was consistent with the previous studies conducted in western and Asian countries [22]–[25].

There were some vaccine/vaccination-specific influences to hesitancy in taking the COVID-19 vaccination in the country including the “wait and see” behavior of delaying the vaccination to get a better vaccine that is proven to be safer and higher in efficacy. Studies conducted in the United States and China show that about 45% of the respondents delayed receiving the COVID-19 vaccine till the safety and efficacy of the vaccine were proven, and some of them would wait for months to take the vaccine [26]–[28]. and observing how the other recipients doing first.

On another note, hesitancy among participants with comorbidities, in pregnancy, and currently breastfeeding was due to their anxiety of possible side effects on top of their underlying medical conditions. This finding was consistent with previous studies that have been conducted [29], [30]. This study also found that there is a geographical barrier contributing to this issue where the provided vaccination centers were not reachable for the rural community. The previous study also found similar results [26], [31].

Surprisingly, this study also found that there is a lack of confidence in rulers who currently leads the government which also contributes an influence to the hesitancy for COVID-19 vaccination. The respondents believed that

The National COVID-19 Immunisation Programme is a form of clinical trial and exploits the citizen as guinea pigs. This finding is consistent with the previous study reported in the country and other parts of the world [18], [31]–[33].

VI. LIMITATIONS

As this study used non-probability sampling and the sample only represents one state in the country, the findings cannot be generalized. Nevertheless, the study findings were able to develop similar contexts as it was consistent with previous studies that were conducted both in the country and other parts of the world on COVID-19 vaccine hesitancy.

VII. CONCLUSION

Influences arising from socio-cultural, environmental, economic status, and political factors would affect the confidence in taking the COVID-19 vaccine. Complacency toward the COVID-19 vaccine can be achieved by obtaining accurate information and gathering appropriate experience from surrounding peers and society that influence personal perception about the vaccine. Physical availability, geographical accessibility, and the quality of vaccination services must always be accommodating and straightforward for the convenience of the receiver.

Communication and mass media plays a major role in disseminating the information on the vaccine and must be controlled and limited for certain facts that might be misleading and cause misconception among the community. Collaboration with related authorities needs to be urged to tackle this issue. The enforcement of approved law must be transparent to avoid misunderstanding and bias among the community. The policymaker in the relevant ministry needs to find gaps and a way out of factors contributing to vaccine hesitancy. Finally, the formation of an experts group needs to be developed to ensure the country is always prepared to encounter such a situation in the future.

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