

# Mapping Out Factors that Undermining Vaccine Uptake in Malaysia: A Multiple Perspective

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## ABSTRACT

**INTRODUCTION:** Malaysia has recorded a sporadic increase in vaccine-preventable diseases in many different states such as Johor, Perak, Selangor, and Sabah, to name a few. What is more worrying was the drastic drop in vaccination for children especially the measles, mumps, and rubella (MMR) vaccination during the early period of COVID-19 pandemic in 2020. On this basis, this paper is intended to interrogate why vaccine uptake has decreased over the years. When vaccination became a global concern with the surge of COVID-19 cases in the first quarter of 2020, further questions were posed to understand the reality behind vaccine rejections and refusals. **MATERIALS AND METHODS:** This study employs a focus group discussion and in-depth interviews to explore the vaccine refusal phenomenon in Malaysia. Theoretical sampling led to the recruitment of participants from health institution, media organisation, and vaccine refusal individuals as they are useful to provide different yet connected insights into the phenomenon under study. **RESULTS:** Under the constructivist-interpretivist paradigm, grounded theory revealed that micro and macro factors jointly contribute to vaccination refusals. **CONCLUSIONS:** Considering these factors, this study suggests the importance of health literacy and synergised policies to protect, educate, and guide society on vaccine-related matters.

## Keywords

Constructivist Grounded Theory, Interviews, Focus Group, Vaccine Refusals

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Received: 14<sup>th</sup> April 2023; Accepted: 2<sup>nd</sup>  
August 2023

Doi: <https://doi.org/10.31436/imjm.v23i01>

## INTRODUCTION

Malaysia has observed a rise in vaccine-preventable diseases of late. In June 2016, a seven-year-old girl passed away due to a diphtheria infection.<sup>1</sup> Media reported another diphtheria case in 2019 involving a two-year-old boy. His medical details revealed that he was not vaccinated since birth.<sup>2</sup> The same disease then infected children from other localities in the same year. Another alarming case further made news headlines when a three-month-old boy in Sabah contracted polio even though Malaysia has been declared a polio-free country for 28 years. Like the previous cases, it was found that in area where the infant lived, out of 199 children, 23 of them had not been vaccinated. One of the reasons for vaccine-preventable diseases outbreak is misinformation and falsehood brought by anti-vaxxers which influenced vaccine refusal and vaccine-hesitant individuals.<sup>3</sup> The misapprehension towards vaccination was traced to a controversial publication by Andrew Wakefield in 1998, which claimed a relationship between the MMR vaccine and autism. Other than misleading information, insufficient information provided to different segments of society has also contributed to vaccine rejection. For instance, it was reported that most newspapers did not provide sufficient information to address vaccine misinformation.<sup>4</sup> The news preferred the episodic approach in framing vaccination issues, particularly within the boundaries of unbiased and neutral reporting<sup>5,6</sup> leaving misinformation unaddressed. Further found, some Italian parents required more information than others in the community due to several parenthood-related reasons.<sup>7</sup> Limited data from authoritative bodies motivated parents to look for other details to satisfy their curiosity.

Consequently, they were exposed to different types of information that might have negative consequences on their stance on vaccines. As suggested in one study,<sup>8</sup> it is essential for the authorities to be meticulous in formulating vaccine communication strategy to address different types of society members and their unique concerns. In Malaysia, the vaccine refusal and rejection scenario came to light in 2012 and became a forthright agenda on social media, especially in in-seminating anti-vaccine sentiments to influence the public. As researched in a Facebook group called Masyarakat Kene Tahu (MKT) to discuss and exchange opinions about vaccination, there are three types of anti-vaxxers, namely persistent, moderate, and uncertain individuals.<sup>9</sup>

To date, the anti-vax movement is still active in spreading its propaganda in Malaysia, possibly making it a latent threat to national security in the future.<sup>10</sup> Discussions point to misinformation and misconception as factors that significantly contribute to a decreasing vaccine uptake among the Malaysian public. The scenario persisted even after the spread of COVID-19, which had caused many casualties.<sup>11</sup> It has brought the realisation that besides misinformation, other realities interactively echo vaccine rejections making contextual and specific exploration pertinent. Thus, the purpose of this paper is to explore other inherent factors that undermine vaccine uptakes to provide a deeper understanding of the vaccine refusal phenomenon, particularly in the context where this study was conducted.

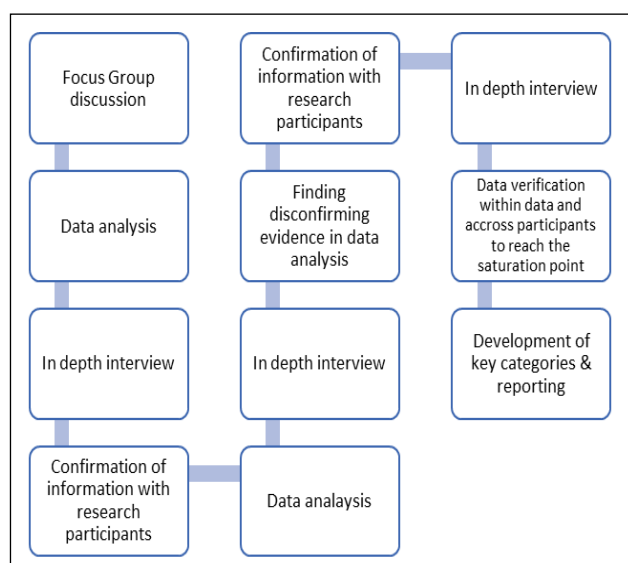
## MATERIALS AND METHOD

### Participants

In consistent with grounded theory method, participants of this study were selected using theoretical sampling which involves selection based on an emerging theory or data during analysis. At the beginning of this study, vaccine advocates from health fraternity and non-governmental organisations (NGOs) were invited to share their views related to vaccine hesitancy phenomenon in Malaysia. To ensure the following samples could help answer the questions under investigation, data analysis,

coding, and sampling were carried out simultaneously. This study also approached media practitioners and anti-vaxxers as they were known to be knowledgeable to obtain deeper understanding and shed different perspectives of the phenomenon. Firstly, on 18 January 2020, participants were recruited for a focus group discussion that gathered health practitioners, vaccination activists on social media, and content guide official. While focus group data were reviewed and analysed, media practitioners were recruited alongside anti-vaxxers through one-on-one interviews that took place in February, March, and September 2020 respectively.

The use of theoretical sampling was useful as it assisted to provide disconfirming evidence to increase the depth and breadth of the focus group data to ensure categories and themes induced were comprehensively explored. Interviews with the media practitioners and anti-vaxxer worked as triangulation that corresponds with grounded theory, which allowed the recruitment of participants with different experiences to explore multiple dimensions of the social phenomenon. The triangulation was further carried out by contacting the previous research participants to explore and clarify information during data analysis to ensure codes and categories reached a saturation point. Figure 1 shows the framework of data collection and verification processes to reach saturation.



**Figure 1:** Framework of data collection and verification processes to reach saturation

## Eligibility Criteria

Recruitment was done by contacting each potential participant who fulfilled the following criteria; i) Health officers who dealt with vaccination; ii) vaccine advocates in social media as they assumed to understand the concerns of the public in relations to vaccination; iii) individuals who reject vaccination for themselves and children; iv) media practitioners as they dealt with the coverage of vaccination stories; v) Communications and Multimedia Content Forum of Malaysia (CMCF) officer, a self-regulatory industry which oversees and promote self-regulation of content. The two last participants were included as their roles affect media content, which eventually shaped the public's perception of vaccination.

## Procedures

The research adhered to ethics by obtaining consent from participants prior to interviews. Tape and video were used to record interview sessions with consent from participants. Researchers established rapport with participants to gain trust and to ensure information sharing will move beyond a superficial level. A semi-structured interview protocol was adopted. Besides the one-on-one interview sessions, a focus group discussion was used to provide an interactive, stimulating, and engaging environment between participants and researchers in the process of exploring the questions under study. Meaningful data could be gathered when participants cooperate to share views in a focus group discussion.

## Semi-Structured Interview Protocol

This study developed a semi-structured interview protocol to assist researchers in keeping the conversation focused on specific subjects while also providing prompts for respondents. As interviews were led by three researchers in separate data collection exercise, the interview protocol ensured the credibility of this research. The interview protocol consists of four main sections namely, i) general views of vaccine uptake in Malaysia, ii) views of vaccine information as communicated on media, iii) problems and challenges in sending out vaccine information to the

public, and iv) approaches to educate society in combating anti-vaccination. As for anti-vaxxers, questions were slightly different with the main aim to understand their views of vaccination, reasons of vaccine rejection, and the extent of their efforts in sharing anti-vaccination views. It should be noted that the interviews were not limited to these sections as other questions were also explored based on their responses if they were within the subject of interests.

## Data Analysis

Data were analysed using grounded theory which required data analysis and data collection to occur simultaneously. Kathy Charmaz's constructivist lens and constant comparative analysis assisted in data analysis. Reflectivity among researchers also assisted in interpreting the phenomenon of the study. In general, the data analysis of this study consisted of reading, re-reading of and preparing an individual's transcript into a meaning unit, followed by initial line-by-line, sentence-by-sentence coding of an individual transcript.

Focused coding in an individual transcript and between transcripts was carried out to refine categories until a unified category emerged inductively from the data grounded in participants' viewpoints. Two researchers were involved from the beginning of the data analysis. Following standards from past studies,<sup>12-14</sup> findings were validated by evaluating researchers' role within research, transparency through audit trail, member checking and data confirmation, clarity by using categories to summarise the results, and originality and usefulness of the research.

## RESULTS

Two categories emerged from the participants' experiences and perspectives of the factors undermining vaccine uptake in Malaysia: micro and macro factors. Despite their different characteristics, these categories have symbiotic relationships. This section will begin by highlighting the micro factors. Figure 2 summarizes the factors of vaccine rejection shared by research participants.

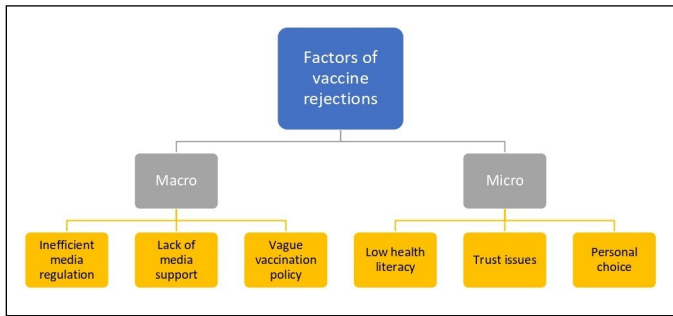


Figure 2: Factors of vaccine rejection shared by research participants

### Micro Factors: Low Health Literacy, Trust Issue, and Personal Choice

The micro-element highlighted three factors, namely i) low health literacy, ii) trust issue, and iii) personal choice; as the factors leading to the decrease of vaccine uptake in Malaysia at an individual or personal level. The first factor, which is the basis of the issue, is low health literacy. The medical practitioners highlighted that when society is not equipped with sufficient vaccine-related information, they will be susceptible to manipulative and misleading content spread by anti-vaxxers on social media, leading to misinterpretation of the concept and importance of vaccines. Low health literacy has hindered individuals in filtering, analysing, and differentiating false vaccine information. One medical practitioner (D) shared, *“In terms of health literacy, our society is still naïve”*.

Another medical practitioner (S) further emphasised that some individuals tend to disregard any information that does not match their strong traditional and personal beliefs. Dr S stated, *“Parents will come to clinics with fixed-minded [of] not [wanting] to take vaccines. They will not listen to any of our explanations”*. According to one media practitioner (M), *“there is a lot of vaccine-related content in the media, perhaps they don’t read”*. This attitude has hindered them from grasping a clear concept of vaccines due to a lack of exposure to credible information. These assertions are congruent with that of a vaccine refusal who was uninformed about the existence of vaccines in the past and the status of vaccines according to Islamic law or known as the *halal* status, as can be seen below:

*“Based on my understanding at that time, the vaccine was not certified by JAKIM (a Malaysian Islamic authoritative body) and international authoritative bodies... It is logical for us to understand that, why did vaccines not exist in the past and only now?”*

She further emphasised her reliance on hearsay and unscientific research in understanding the issue instead of finding credible sources of information. The second micro factor is the trust issue amongst vaccine refusal who prefer to rely on alternative health practitioners and unknown information sources rather than professional ones. As expounded by a medical practitioner (S), some individuals will only seek certified treatment and information at the last stage of their diseases after seeing shamans.

Further, another interview participant who worked in a media institution (AH) claimed that some individuals are easily influenced by Google and foreign sources whose information might be contextually incompatible with their health conditions. Moreover, a lack of information on vaccine substances seems to result in a trust deficit on vaccine safety. A media practitioner (MS) who participated in this research highlighted, *“There was a claim on social media [by the vaccine refusals] that the vaccine contains monkey’s foetus and kidneys”*. This response is not an isolated case as the vaccine refusal herself rejected the vaccine due to its artificial and unknown elements. She observed that *“there is... an international [individuals]... although they are not Muslim, they rejected [vaccines] because of foreign substances in the vaccine”*. The issue of distrust further extends to the *halal* status (permissibility according to Islamic law) of vaccines.

Although the Malaysian religious bodies have issued official statements approving the use of vaccines, those statements have failed to convince the vaccine refusals to vaccinate. She iterated, *“Based on my understanding back then, I didn’t find any halal certification (authoritative religious certification) from any local or international religious bodies”*. The third micro factor influencing vaccine uptake in Malaysia is personal choice. As articulated by the vaccine refusal, her decision to reject vaccination stems from her personal experiences. She said, *“Based on my experience, nine siblings, and my mother, some of us missed vaccines. But there is nothing such an epidemic... I have never had any serious diseases. Thus, it strengthens my stance on rejecting vaccines”*. Some vaccine refusals consider their right to personal choice paramount and should be preserved. They believe that they should be given the liberty to make decisions for their lives including refusing to be vaccinated, as asserted by one media practitioner, *“[Anti-vaxxers] regard the government’s policy in making*

vaccination [mandatory] as breaching human rights (individual freedom)".

### **Macro Factors: Unregulated Social Media Activities, Unsupportive Mass Media, and Unavailable Synergised Vaccination Policy**

There are three significant factors undermining vaccine uptake at the macro or societal level. As explicated by our study participants, the first factor is unregulated social media activities. The medical practitioners consensually claimed that social media is overtaking mass media as the primary source of information. Unlike mass media, content quality regulation is absent in social media. As a result, society has been exposed to unlimited unreliable hypotheses and information that may cloud their understanding of vaccines. A medical practitioner (S) said, "On social media, everybody can talk and express their opinions or assumptions. You will be flooded by information, and that's worrisome as there is no filtration, boundless and baseless claims and untrustworthy sources".

This situation has benefited anti-vaxxers by allowing them to disseminate speculative or baseless information due to a lack of jurisdiction and law. Indeed, a medical practitioner (D) who participated in this study highlighted, "The anti-vax is quite active on social media. They are free to express themselves, and the things they shared are irresponsible and unethical, yet they are free from [legal] actions".

Unsupportive mass media further contributes to a decreasing vaccine uptake. The mainstream media were said to be inefficient in playing their expected role as the primary communication platform for educating the public about vaccination. A medical practitioner (A) claimed that, "The media did not highlight vaccines because they don't see its newsworthiness. Whereas the social media will brag about the adverse effects when that happened". This view was supported by another participant, medical practitioner (S), who stated that, "Mass media need to be more efficient; I think they need to respond to vaccination issues quickly". Consequently, society has been consistently referring to social media platforms to obtain vaccine-related information. The participants also shared that the mainstream media lack quality and didactic content to attract society. One medical practitioner (D) claimed that, "Our mainstream media are quite boring; while this

anti-vax issue has been hit for almost one year, they are still focusing on politics and will not focus on trivial stuff". The participant emphasised, "The mainstream media should take this responsibility as part of their corporate social responsibility programme and play up [vaccination] programmes during prime time. Even though they don't have many viewers, they are trustworthy".

Lastly, the unavailability of a synergised vaccination policy in the country is one of the significant factors undermining vaccine uptake. For instance, there are no synergised policies in the relevant sectors such as education and health sectors that emphasise parents' obligation to vaccinate their children. The participants opined that vaccination should be made mandatory for all children in Malaysia, as emphasised by a medical practitioner (A), "Perhaps, if we include vaccination programmes as part of the children's policy, we can enforce it". Other than policies, the participants also highlighted the unavailability of specific policies that could curb the vaccine deniers' communication activities on social media. One participant said, "There is a need to introduce new acts to curb their [anti-vaxxers] activities from influencing the society... so that the authorities can take legal actions".

### **DISCUSSION**

The findings of our study have extended the previous works on the factors undermining vaccine uptake, particularly in Malaysia, by classifying the domain of factors and synthesising their relationships. We discovered that these factors affect society differently where some aspects are more influential in the individual domain while other aspects are more inclined towards the systemic domain. The findings further illuminate the work of Smith<sup>3</sup> that recognised the types of factors mentioned earlier. The micro factors revealed the importance of health literacy in shaping society's stance on vaccines. A low level of health literacy may result in a deficit of trust towards vaccines due to the community's inability to assess the issue appropriately. Although there are several reliable health-related websites on the Internet, they are only meant for supplementary reference after a face-to-face consultation with a certified medical practitioner.<sup>15</sup> As discovered in one study,<sup>16</sup> scepticism towards vaccines among the study's participants influenced their information search and eventually strengthened their stance against vaccines. In



general, Malaysians always associate their lives, including their health, with their traditions and religion.<sup>17</sup> Anti-vaccine groups have exploited this situation by disseminating manipulative and erroneous information supported with misleading traditions and religious sentiments to attract society. As a result, society has become hesitant and tended to base their decisions on emotions without looking at the facts. This situation covertly shows the dominance of low health literacy as the controlling factor, which could instigate a domino effect in the chain of reactions towards vaccines.

Meanwhile, the macro factors are more systemic in which they highlight the importance of synergised policies as a mechanism to protect and educate society in the open world. The life of modern society nowadays revolves around social media, which are used for various purposes in people's daily activities.<sup>18</sup> However, the unavailability of efficient policies to control social media activities has left the public unprotected from the influx of anti-vax information and discrepancy in immunisation. Some parents may not see the urgency to vaccinate their children as they can still carry out their daily activities. This situation impedes the authorities from taking legal actions against parents who chose to be unvaccinated.

In addition, despite the media practicality as an external communication tool to provide exposure on health-related issues,<sup>19</sup> the mainstream media institution also appeared to be inefficient in supporting the immunisation programme in both contents and policies. Since society still trusts the credibility of mass media, the authorities should utilise this trust by leveraging on the ability of mainstream media to shape society's view on health-related issues. In comparison to other research on vaccine refusal and uptake in Malaysia, these findings highlight a few noteworthy points that necessitate further discussion. This study confirms the findings of previous research that identified religion as one of the primary factors influencing vaccine refusal in Malaysia, with Islam being the religion most commonly associated with this issue.<sup>20-22</sup> Therefore, it is imperative that we investigate why Islam has become the predominant religion associated with rejection in this country, despite Malaysia being the home to a number of other prominent religions or beliefs. While empirical

research should be conducted to obtain a comprehensive understanding of the phenomenon, we believe that one of the potential causes in this context is that Muslims have additional criteria for the acceptability of the substance that must be met. In addition to the safety of a vaccine, the *halal* status of its ingredients is a decisive factor for Muslims when deciding.<sup>22</sup> In contrast, non-Muslims may only be concerned with the safety of the vaccine, resulting in a lower likelihood of refusal and reluctance compared to Muslims.

Considering this, we propose that future research on vaccine hesitancy and refusal in Malaysia could investigate the influence of religions from a comparative perspective to examine the arguments from each religion and its believers. By doing so, we will be able to understand why some religions are more prone than others to vaccine reluctance. In addition to similarities, this study also discloses a significant contradiction with some studies which worth a highlight. This study demonstrates conclusively that a lack of health literacy contributes to vaccine refusal and rejection in Malaysia, as individuals are unable to adequately evaluate the issue. Contradictorily, a study on parental reluctance to vaccinate their children in Malaysia showed that parents with the highest levels of education are the least likely to vaccinate their children.<sup>23</sup>

The reasons of the reluctance are, however, not properly discussed in the report. Alternatively, this reluctance can be comprehended by examining another study, which discovered that highly educated parents have a negative stance on vaccines because of the safety issue.<sup>24</sup> They are not fully convinced with the limited information that they received as the vaccine is still new. We can conclude that the refusal of highly educated individuals could be due to a cautious attitude towards a new vaccine. Yet, this is not the case for individuals with limited health literacy in our study, as they are misled by non-credible information and sentiments. The contradictions in this discussion have shed a new light on the correlation between literacy or knowledge and vaccine refusal issues. Therefore, it is essential for vaccination advocates and authorities to be aware of the variations in refusals to appropriately strategize their campaigns.

## Limitation of Study

Most of the participants in this study were recruited from the health and media professionals. Data from the anti-vaxxer was verified and confirmed through secondary data that was content analysed as part of this study. The researchers proposed that future studies should approach more anti-vaxxers to understand their dynamic concerns in relation to vaccination deeper, which could contribute to the current research evidence.

## CONCLUSION

To conclude, this study has valorised the existing literature by mapping out the factors that undermine vaccine uptake, particularly in Malaysia, which could be worthwhile for the policymakers to address and break the cycle of the issue. The misinformation factor is still pertinent in Malaysian society. However, this study found that it is just a sub-factor of low health literacy. In addition to responding to the main question, this study has constructed two significant themes: the importance of health literacy in guiding society and synergised policies to protect and educate society.

## ACKNOWLEDGEMENT

This work was supported by the Malaysian Ministry of Higher Learning under Fundamental Research Grants Scheme (Project number FRGS/1/2019/SSI09/UIAM/03/1).

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