

## Potential Factors Contributing to Vaccine Hesitancy among Parents in Malaysia: An Overview

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### ABSTRACT

Reducing child mortality by facilitating universal access to safe vaccines of proven efficacy appears to be a moral obligation for the international community. Immunisation has brought enormous positive impacts on the health of children worldwide. In Malaysia, the National Immunisation Programme (NIP) was established in the 1950s with the missions of protecting the child population from vaccine-preventable diseases, reducing endemic cases, as well as decreasing the morbidity and mortality rates associated with vaccine-preventable diseases. However, there are an increasing number of individuals who perceived it as unsafe and unnecessary although vaccination programme has been recognised as one of the most successful preventive measures in public health. Thus, this article provides an overview regarding the potential factors that might contribute to vaccine hesitancy in Malaysia. Vaccine hesitancy issues could be explained based on the Health Belief Model (HBM) and 3s model by World Health Organisation (WHO). Several prominent factors have been associated with vaccine hesitancy, such as low awareness about the benefits of vaccination; availability, accessibility, and affordability; misconception and concern about side effects of vaccine; as well as preferred alternatives medicines. These factors might contribute to the increasing trend of Malaysian parents who choose not to vaccinate their children. Thus, more in-depth studies are warranted to tackle these pressing issues.

**Key words:** vaccine hesitancy, vaccination, potential factors, Malaysia

### INTRODUCTION

Globally, reducing child mortality by facilitating universal access to safe vaccines of proven efficacy appears to be a moral obligation for the international community as it is a human right for every individual to have the opportunity to live a healthier and fuller life. <sup>[1]</sup> It has been acknowledged in the literature that immunisation has brought enormous positive impacts on the health of children and it is also a great tool in embarking the public health issues worldwide. <sup>[2]</sup> Among the many global initiatives is the launch of

the Global Vaccine Action Plan (GVAP) for 2011–2020 with targeted immunisation coverage of at least 90% DTP3 at the national level and at least 80% DTP3 at the district level, in which every country is allowed to implement their own strategy to achieve these targets. <sup>[3]</sup>

In Malaysia, the initial National Immunisation Programme (NIP) was established in the 1950s with the missions of protecting the child population from vaccine-preventable diseases, reducing endemic cases, as well as decreasing the morbidity and mortality rates associated

with vaccine-preventable diseases. This immunisation program is integrated in the mother-and-child health services. In line with the recommendation made by the World Health Organisation (WHO), Malaysia has introduced EPI (Expanded Programme on *Immunisation*) as a national program in year 1982. Measles vaccine was introduced in that year, and followed by Rubella and Hepatitis B in 1986 and 1989. [4] A few years later, a combination of measles, mumps, and Rubella (MMR), as well as Haemophilus Influenza Type B (Hib) vaccine, had been included in the program in year 2002. Vaccinations are provided free-of-charge at all government clinics across the country. Despite of the EPI recommendation that all countries immunise against 6 childhood diseases, the Malaysian NIP has expanded its protection against 12 major childhood diseases.

Although vaccination programme has been recognised as one of the most successful preventive measures in public health, there seems to be an increasing number of individuals who perceived it as unsafe and unnecessary. [5] Findings from the National Health and Morbidity Survey (NHMS) 2016 [6] indicated that the overall prevalence of children aged from 12 until 23 months, who completed their primary vaccination, was more than 90 percent. However, statistics indicated that the number of parents in Malaysia who chose not to vaccinate their children increased, especially among parents with children aged below two years, from 637 cases in 2013 to 1,603 cases in 2016. [7] However, it is estimated that the numbers may be more because the figures excluded data from private health clinics and hospitals. This increasing trend indicates that the public demands for more safety affirmations towards vaccination or immunisation despite a wide array of safe and effective vaccines in use at the global level. [2]

The WHO has defined vaccine hesitancy as “to delay in acceptance or refusal of vaccination despite availability of vaccination services. Vaccine hesitancy is

complex and context specific, varying across time, place and vaccines. This vaccine hesitancy is influenced by several factors, such as complacency, convenience, and confidence”. [8]

### **THEORETICAL ASSUMPTION – HEALTH BELIEF MODEL AND 3 CS MODEL**

The theoretical framework assumes that vaccine hesitancy issues could be explained based on the Health Belief Model (HBM). [9] Among the main HBM assumptions is explaining and predicting preventive health behaviour. For example, parents’ motivation behind vaccination for their children can be divided into three main categories: individual perceptions, modifying factors, and likelihood of action. Individual perceptions are factors that affect the perception of illness or disease, including perceived susceptibility, and perceived severity. Meanwhile, modifying factors include sociodemographic variables, perceived threat, and cues to action. On the other hand, the likelihood of action discusses factors in the probability of taking the recommended preventive action that weighs in the perceived benefits and barriers. Finally, the combination of these domains causes a response that often manifests into action, provided it is accompanied by a rational alternative course of action. For instance, a study that investigated vaccine hesitancy or refusal among parents using HBM showed that children had significantly lower vaccination coverage for every vaccine if their parents were less likely to agree that (a) their children’s health is protected by vaccines; (b) their children might fall ill if not vaccinated; (c) vaccines do a good job of preventing the disease they are intended to prevent; (d) vaccines are safe; (e) they have a good relationship with their children’s health-care provider; or (f) medical professionals in-charge of vaccinations have their children’ best interest at heart. [10]

Among the prominent models developed by WHO to explain vaccine

hesitancy is the 3s model. [8] This model highlights three aspects, which are: complacency, convenience, and confidence. First, complacency involves perceived risks that vaccine-preventable diseases are low and vaccination is not deemed a necessary preventive action. Second, vaccination convenience involves perceived benefits of immunisation services in terms of availability, affordability, willingness-to-pay, geographical accessibility, and ability to understand (language and health literacy). Lastly, vaccination confidence is referred as trust towards the effectiveness and safety of vaccines and the system that delivers them. For example, the side effects of vaccines prompt some parents to choose alternative treatments, such as homeopathy.

### **POTENTIAL FACTORS FOR VACCINE HESITANCY IN MALAYSIA**

Important evidence, as depicted in a systematic review and meta-analysis conducted by Santhanesh et al. [11] regarding factors that influenced the intention to obtain HPV vaccine in South East Asian and Western Pacific regions, indicated various factors, including perceived susceptibility, perceived seriousness of disease, concerns about side effects, confidence in the efficacy, cost, educational need, and awareness. In Malaysia, several prominent factors have been associated with vaccine hesitancy, such as low awareness about the benefits of vaccination; availability, accessibility, and affordability; misconception and concern about side effects of vaccine; as well as preferred alternatives medicines. Thus, this article provides an overview regarding the potential factors that might contribute to vaccine hesitancy in Malaysia.

### **LOW AWARENESS ABOUT VACCINATION AND ITS BENEFITS**

There seems to be a case of low awareness regarding the benefits of child vaccination among Malaysian parents as they perceive that those diseases are no

longer in existence. These findings were revealed in a cross-sectional study performed by Awadh et al. [12] upon assessing parents' knowledge and the effect of a short educational intervention in improving parents' knowledge of childhood immunisation. The study sample was comprised of 73 parents, which mostly were mothers (n = 64, 87.7%). Parents' knowledge about the benefits of immunisation appeared to increase significantly after the intervention session was conducted.

Another cross-sectional study investigated the factors associated with childhood immunisation status among children aged less than two years in public maternal child health clinics at urban and sub-urban parts of the Tawau district in Sabah. [13] The results showed that 24.8 percent out of the 443 respondents had incomplete immunisation status. There was a significant reduction in the odds of the children being immunised among mothers who were clueless about immunisation routines.

### **AVAILABILITY, ACCESSIBILITY, AFFORDABILITY, AND ACCEPTABILITY**

Evidence in healthcare studies suggests that the conceptual definition of availability in vaccination program should be explored in various dimensions in terms of accessibility, affordability, and acceptability. [14] Empirical evidence regarding this issue can be best described by a study investigating the factors that contribute to missed appointments on scheduled routine health care follow-up visits among 1-4 years old toddlers in government health clinics in Kelantan, Malaysia. [15] The results showed that mothers who had poor knowledge about child care services in government health clinics were 8 times more likely to miss their toddlers' appointments; while mothers who had poor social support were 5 times more likely to miss their toddlers' appointments; and mothers who had

negative perception towards facilities and services in government health clinics were twice more likely to miss their toddlers' appointments for health care.

Previous studies regarding vaccine refusal in Malaysia also revealed various reasons on why parents refused to allow their children to be vaccinated under NIP. In one study conducted by Ahmad et al. [16] with the aim to identify population at-risk for incomplete immunisation and their associated factors using data on immunisation module derived from the National Health and Morbidity Survey (NHMS) 2016 [6] discovered higher prevalence of incomplete immunisation among children from urban areas and those children whose mothers sought care during pregnancy at private clinics. Among reasons mentioned were lack of vaccine stock at private healthcare facilities and varying immunisation schedules.

In another cross-sectional study that determined the prevalence of immunisation defaulters, and their associated risk factors among children aged 12 to 24 months in all government maternal child health clinics in the district of Kota Kinabalu located at Sabah showed the prevalence rate for defaulting immunisation was 16.8% from the 315 respondents. [17] Among the top three immunisations that had the highest rate of defaulters were DPT–OPV booster dose (56.6%), MMR (43.4 %), as well as DPT-Hib/OPV and Hep B third dose (37.7%). The study results showed that various significant factors had been associated with defaulters, such as mother's employment status, family mobility, transportation, and cost. Multivariate analysis displayed that only mother's age, mother's employment status, and family size were the significant predictors for defaulting immunisation.

#### **MISCONCEPTION AND CONCERN ABOUT SIDE EFFECTS OF VACCINE**

Another potential factor that might contribute to vaccine hesitancy among parents in Malaysia is the social media

influence that claims vaccine ingredients might not be halal (permitted) in Islam. For example, a group of young educated parents who actively campaigned via various social media, such as Facebook, claimed that the immunisation programme is a “New World” conspiracy and questioned the halal status of the vaccines used. [18] Since Muslims are the majority population in Malaysia, this issue becomes a major concern that has influenced some parents' decision against vaccination for their children. [2] In addition, the findings retrieved from the NHMS 2016 [6] in Malaysia indicated that 4.5 percent children had received some vaccinations, but did not complete all the scheduled primary vaccination by the age of 12 months, and 0.1% had not received any vaccination. Further investigations revealed several reasons on why vaccine-hesitant parents did not vaccinate their children, such as being worried about side effects (2.4%), having distrust towards vaccine (2.1%), and being doubtful about the halal status of vaccine (1.3%).

Furthermore, empirical evidence also showed that parents with higher level of education did not necessarily complied with the decision to vaccinate their children. This can be shown regarding parents' practice on childhood immunisations in Selangor, Malaysia involving 830 respondents. [19] A majority of the respondents were females who received tertiary education and employed either in government or private sector. Although 98.2% of the parents consented to child immunisation, 1.8% of them did not immunise their children. This is because; vaccinations were perceived to increase the risk of their children to fall ill.

Similar study conducted by Azizi et al. [20] which determined the prevalence of vaccine hesitancy among 545 respondents in Kuala Lumpur showed that a total of 63 (11.6%) were vaccine-hesitant. In this respect, the researchers measured vaccine-hesitant parents in two parts; delaying vaccination for their children, and refusing vaccines for their children. Among the

reasons identified for vaccine hesitancy were concerns mainly about the side effects; efficiency and safety of the vaccines; unsure if their children should get too many vaccine injections or fewer vaccines at the same time; and unsure if their children will be able to develop immunity naturally by getting sick.

### **PREFERRED ALTERNATIVE MEDICINES**

Literature regarding alternative medicines available in Malaysia depicts that some parents preferred alternatives to vaccination, such as homeopathy, acupuncture, and cupping. [2] Apart from that, there is a belief among some Muslims that nutrients obtained from some food such as dates, nigella sativa (black seed), honey, olive, and pomegranates, which are perceived as blessed foods and fruits in Islam, can boost and increase immunity in children. A study by Lim et al. [21] investigated parental reasons for reluctance towards immunising their children aged 15–24 months, especially those who defaulted immunisation for 3 months or longer in ten government health centres that offered primary immunisation. Out of 10,189 immunisable children, 95 missed primary immunisation. Further investigation concluded that vaccine-hesitant parents showed preference for alternative treatment, other than the assumption that vaccines have no effect, and doubted the contents of the vaccines.

### **CONCLUSION**

Numerous studies have revealed that vaccine hesitancy among parents in Malaysia had been due to various potential factors, such as low awareness or knowledge regarding the benefits of vaccination among parents, as well as factors related to availability, accessibility, affordability, and acceptability to vaccination. Vaccine hesitancy among parents is also contributed by other potential factors, including misconception and concern about side effects of vaccine and

preference towards alternatives medicine. These factors might contribute to the increasing trend of Malaysian parents who choose not to vaccinate their children. Thus, more in-depth studies are warranted to tackle these pressing issues.

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