SEARCH Journal of Media and Communication Research
Online ISSN: 2672-7080

SEARCH 14(2), 2022, 105–118

http://search.taylors.edu.my

Exploring parental refusal of vaccine in Selangor

*Zaikiah Mohd. Zin
Institute for Health Behavioural Research, Ministry of Health, Malaysia
zaikiah@moh.gov.my

Manimaran Krishnan, Sheikh Shafizal Sheikh Ilman, Norrafizah Jaafar, Mohamad Zaidan Zulkepli, Khairulnissa Abdul Kadir, & Normawati Ahmad
Institute for Health Behavioural Research, Ministry of Health, Malaysia

ABSTRACT

Vaccination represents a relevant and timely focus area for communication studies as vaccination is one of the key preventions for vaccine-preventable diseases recognised by national public health policies. However, in recent years, Malaysia has witnessed an era of vaccine refusal. Therefore, this study aims to explore the reasons for parental rejection of childhood vaccination. This is a qualitative study conducted in 2017–2018 with the help of the purposive sampling technique. Twenty-seven eligible parents who refused vaccination in selected healthcare clinics in Selangor participated in this study. The clinic's staff assisted in contacting the potential parents for the interview session to accelerate the recruiting process. The audio was recorded during the in-depth interview and subsequently, transcribed and analysed thematically. Two main themes emerged: internal and external factors of vaccine refusal. Results indicate self principle belief in alternative practices and distrust of health practitioners were internal forces. In contrast, domestic burden, effects and content of vaccine, and media influence were external forces that drive parental refusal of vaccination. Given the diversity of factors affecting vaccine refusal, these findings can help formulate appropriate and effective strategies to influence parental confidence and acceptance of childhood vaccination. Although the decision to vaccinate lies with the parents, a concerted effort by all parties, namely the government, civil society and religious leaders (*ulama*), should be taken to stop and reverse the current trend of vaccine refusal.

Keywords: ***Vaccination, vaccine refusal, vaccine hesitancy, refusal factors, refusal reasons***

* Corresponding author

INTRODUCTION

Parental attitudes and perceptions about routine childhood vaccinations represents a relevant and timely focus area for communication studies (Bianco et al., 2019). However, health communication efforts regarding vaccine have become a big challenge as anti-vaccine groups have been propagating misleading information via the online media which has confused many parents (Dionne et al., 2022). Thus, digital media literacy is crucial for boosting vaccine confidence and further help enhance public healthcare because it can significantly impact the formation of attitudes and behaviour regarding health.

In Malaysia, the vaccine programme was formally established through the National Immunisation Programme (NIP) in the 1950s to protect the children population from vaccine-preventable diseases, reduce endemic cases, as well as reduce the morbidity and mortality of vaccine-preventable diseases. The immunisation programme was integrated into the Mother & Child Health services under the Family Health Development Division, Ministry of Health, Malaysia. Following the World Health Organization's (WHO) recommendation, Malaysia launched the Extended Immunisation Programme (EPI) as a national programme in 1982. Going beyond EPI's suggestion that all countries immunise against six childhood diseases, the NIP expanded protection against 12 major childhood diseases which are measles, hepatitis B, tuberculosis, diphtheria, pertussis, tetanus, japanese encephalitis (JE), mumps, poliomyelitis, rubella, pneumococcal and Haemophilus influenzae type B (Hib). Vaccinations are given free at all government clinics and hospitals (Kusnin, 2017).

However, over the last few years, numerous contentions and conflicting explanations surrounding vaccination safety have emerged, leading to many parents refusing to vaccinate their children. Statistics indicate that the number of parents in Malaysia who choose not to vaccinate their children is increasing, especially among parents with children below two years old, from 637 in 2013 to 1,603 cases in 2016 (Ministry of Health, 2016). However, it is estimated that the figures could be much more significant because the number excludes data from private health clinics. In Malaysia, paramedics or house officers will counsel parents who refuse vaccination, after which they are then referred to medical doctors. Subsequently, if they still refuse vaccination, they are referred to a specialist for a more detailed consultation. However, if all these steps fail, they will be given a vaccine rejection form to sign and state their reasons for refusing vaccination.

LITERATURE REVIEW

Literature shows that various factors can lead to parental reluctance or refusal to vaccinate their children. Some studies found that well-educated, higher-income parents are more likely to refuse vaccines (Insel, 2012; Anello et al., 2017). There is also a widespread belief that infants born with small heads or brains (microcephaly) in Brazil are due to vaccines for diseases such as tetanus, diphtheria and pertussis (Insel, 2012). Some parents trust that the side effects of vaccines are more extensive than what their doctors tell them and that the risks overshadow the benefits of vaccinating their children (McKee & Bohannon, 2016). Conspiracy theories like Big Pharma and physicians manipulating individuals and making money and using vaccines have also emerged. In Malaysia, there is a group of educated young parents who are aggressively protesting vaccination via various social media, including Facebook, alleging that the immunisation programme is a "New World" conspiracy, and they question the *halal* status of the vaccines used (Malaysian Medical Resources, 2013; Ahmad et al., 2017). Overwhelming fears, uncertainties, and misleading

new information in media all contribute to decreased vaccine confidence (Kennedy et al., 2011). Moreover, the lack of scientific clarification of the aetiology of various diseases exacerbates further the negative impression of vaccines. This unfavourable impression reduces vaccine coverage, potentially leading to increased vaccine-preventable disease morbidity and mortality (Olpinski, 2012).

A qualitative study by Barbacariu (2014) among parents with at least one child younger than four years of age cited a few reasons for vaccine refusal, which can be divided into two main themes. The first theme is specific vaccine-related concerns expressed by parents, and the second is parents' sources of information in the vaccination decision-making process. Another qualitative study by Harmsen et al. (2013), using online focus group discussions with Dutch parents, uncovered multiple factors contributing to vaccine refusal. These include family lifestyle, perceptions about the child's body and immune system, perceived risks of disease, perceived advantages of experiencing the illness, vaccine efficacy and side effects, prior negative experience with vaccination, and social environment.

The National Health and Morbidity Survey (Ahmad et al., 2017) reported that the critical reasons for incomplete vaccination were no time, unwell child, and transportation issues. In another study involving 10 government health centres in Kinta's administrative region, preference for alternative treatment, believing vaccination is ineffective and being uncertain of the vaccine's content were some of the reasons given for rejecting immunisation (Lim et al., 2016). A similar study by Karimah and Abdullah (2017) found that post-vaccination experience, vaccination schedule, healthcare practitioners' professional role, vaccine risks, and benefits influence respondents to be vaccine-hesitant.

It has been noted that, until recently, there has been remarkably very few exploratory studies on vaccine refusal in Malaysia using qualitative research. Therefore, the study's objective is to explore factors related to parental refusal of vaccination for their children. The findings will provide evidence-based information to optimise the Ministry of Health's vaccination programme and policies.

METHODS

Study design and sampling

The study adopted a qualitative approach to explore the reasons behind parental refusal to vaccinate their children. The study population was parents who refused vaccination for their children at public healthcare clinics in Selangor. This population figure was obtained from the monthly reports of Vaccine Refusal in 2016. The maximum variation sampling method, a purposive sampling technique was employed to select 24 parents, considering variables such as education level and locality. To accelerate recruitment, the clinic's staff assisted in contacting the potential parents for the interview sessions.

Interview process

Data was collected from August to November 2017 through in-depth interviews using the interview guide to facilitate the interview process. Researchers set up appointments with the informants after verifying their willingness to participate. The inclusion criterion was a parent (mother or father) who refused vaccination partially or totally for their children aged 24 months old and below. Total refusal refers to parents who refuse to undertake any vaccine provided by the healthcare facilities for their children below two years old. In contrast, partial refusal relates to parents who only refuse some vaccines but accept others. Parents whose children have contraindications to the vaccine were excluded from the study.

Analysis

The interviews were recorded verbatim using voice recorders. The audio was then transcribed and analysed simultaneously with the collected data. After each session, the interviewers pre-analysed the notes with other researchers. Since this study used thematic analysis, three transcripts were coded to determine the coding frame. Any coding discrepancy was resolved through discussion until the team members reached a consensus. The themes identified were then categorised as primary themes and sub-themes.

Ethical considerations and grant

This study was registered under the National Medical Research Registry (NMRR-17-516-34985), and ethical approval was granted by the Medical Research Ethical Committee (MREC), Ministry of Health. Researchers also obtained written approval from the Selangor State Health Department to conduct the study in the selected public healthcare clinics. After the researchers explained the study objectives as well as anticipated benefits and confidentiality, informants were given forms to collect their informed consent and demographic profile.

RESULTS

Demographic profile of the informants

A total of 27 parents, who used to be clients in several public healthcare clinics in Selangor, were interviewed. All of them were Malays and Muslims. Most of them were females (mothers), of reproductive age between 20–40 years old, possessed a diploma and above, were working and had an income of RM 4,000 and below. The majority of them partially refused vaccines. A summary of the background of the informants is given in Table 1.

Table 1. Socio-demographic characteristics of the informants

Variables	Category	Frequency	Percentage (%)
Gender	Male	9	33.3
	Female	18	66.7
Age	<20	1	3.7
	20–40	25	92.6
	>40	1	3.7
Employment status	Working	21	77.8
	Not working	6	22.2
Education status	Local	24	88.9
	International	3	11.1
Income	<RM1,000	4	14.8
	RM1,001–RM4,000	18	66.7
	>RM4,000	5	18.5
Status of immunisation	Partial refusal	21	77.8
	Total refusal	6	22.2
Highest educational level	Primary school	3	11.1
	Secondary school	7	25.9
	Certificate/Diploma	10	37.1
	Degree/Master/PhD	7	25.9

Major themes and sub-themes

Various responses emerged from the findings, which can divided into internal and external factors contributing to vaccine refusal (as shown in Table 2).

Table 2. Major themes and sub-themes

Theme	Sub-theme
Internal Factors	Self principle Belief in alternative practices Distrust of healthcare practitioner
External Factors	Domestic burden Significant other or family members Vaccine properties Media influence

Internal factors

Parents shared the internal obstacles that prevented them from vaccinating their children. They tend to value these internal barriers higher, compared to the advantages of vaccines.

Self principle

Some believed intensely in their self principle. They were confident that their decision was right and not influenced by anyone. They were fully convinced that it is best not to vaccinate their children, as it will cause more personal problems later.

> *"I decided by myself, based on my own experiences and observation"* (Informant 5)

> *"It is my own decision, and no one influenced me"* (Informant 20)

> *"I have my stand. I think I am willing to accept any problem that happens to my child because I do not want to have more significant issues (referring to the child's health and character problems)* (Informant 14)

Belief in alternative practices

On the other hand, some parents thought alternative methods were safer for their children's health than vaccination. They felt that over the years, dietary practices by Prophet Muhammad s.a.w and healthy food are more natural and nutritious for children's growth. Such a "superfood" was considered as good as vaccinating the children. Parents have also stated that *as-sunnah* food and homeopathy are other forms of vaccine, apart from the conventional vaccines in Malaysia.

> *"For me, I am more about taking care of health through natural ways, meaning that eating healthy food, reduce sugar intake, like myself and wife, we drink goats' milk, eat Habbatus Sauda, honey, raisins"* (Informant 5)

> *"I have my ways; I practice my vaccine (referring to as-sunnah food)"* (Informant 2)

> *"I practice homoeopathy, that is a vaccine (homoeopathy vaccine)"* (Informant 11)

Distrust of healthcare practitioners

Several parents shared their opinions regarding healthcare practitioners, whom they perceive to be distrustful. They concluded that explanations from healthcare practitioners are merely personal-based opinions and are insufficient to alter their decision to refuse vaccination.

> *"I did not get any argument by health staff that could challenge my decision. If it is just based on personal opinion, I will not accept it"* (Informant 4)

> *"Maybe the doctor's explanation does not affect me yet… It means the message was not rightly given"* (Informant 8)

External factors

Regarding external factors, one of the main factors contributing to vaccine refusal is domestic burdens. The informants claimed that vaccination would cause more problems for them in terms of time and finance. Besides, family members, spouses and close friends also play an essential role in their vaccination decision. They also associate the side effects and content of vaccines as reasons for vaccine refusal. They also blamed the media for the deluge of information on vaccination spread easily and quickly.

Domestic burden

Some parents did not bring their children for vaccination due to personal problems. They cited long waiting hours in the hospital during their visits, and that the vaccine schedule disrupted their working hours. Furthermore, they were convinced that they might have to bear additional healthcare costs if any side effects occured due to vaccination.

> *"It looks better for me not to vaccinate... feel like a vaccine is a burden. Many people in the hospital, then after getting injected, does not look like it is making things easy for us, even our work also gets disrupted"* (Informant 13)

> *"If the child has a problem due to the effect of the injection, they tell us to go to the clinic, go to the hospital, the expenses all they do not bear it, and we have to take leave, we get our pay cut, hah something like that"* (Informant 2)

Significant other and family members

Family traditions and history serves as a benchmark for some parents as they can see that their family members are still well and alive without taking vaccines. Some parents prefered to follow their spouse's decision, especially if the spouse purports to be knowledgeable about vaccines.

> *"It originated from my parents. They decided not to take, so that is why I continue as well"* (Informant 7)

> *"My children are the second generation who did not get their vaccines. Me and my siblings, ten of us were not vaccinated too"* (Informant 21)

> *"She (referring to his wife) is more advanced in knowing about the vaccine. I knew about it later only. She shared a lot about disadvantages of vaccine to me"* (Informant 6)

A few of them were advised on the vaccination issue by their close circle of friends, religious preachers (mosque *qariah*/congregation members), nutrition experts, and their schoolmates.

> *"Most of the time, I asked at the places that I visited… friends at mosque, friends at religious functions"* (Informant 1)

> *"He is just a nutritionist (friend) and not a doctor, but he knows like a doctor, he knows about this eczema disease all"* (Informant 9)

> *"My husband's friends from the same school, all of them did not vaccinate their children, but the effect is ok, children have grown… for an example, his friend, already 40 years old, was not vaccinated also"* (Informant 16)

Vaccine properties

Some parents were highly concerned with the side effects of vaccine because they did not want their children to suffer from fever, swelling, and appetite loss. Even though they were aware that the side effects are mild, they somehow exaggerated the symptoms as being unbearable. Some other parents also worried that vaccination could cause a particular brain disorder as they feel its content is doubtful.

> *"When getting the injection, firstly, they will get a fever. That is something that I do not like so much. The child will get a fever and start to blabber, sometimes swelling. That is the reason I avoid it because I do not want them to go back home, suffering from fever, pain, swelling, everything not right, and lose appetite to drink milk"* (Informant 22)

> *"My husband says he cannot bear to see the children getting swelling; he thinks they will undoubtedly get a fever. That is what he does not want anymore"* (Informant 25)

> *"There was a case that I read before. It happened to my family member. After getting the vaccine shot, her child had brain problems. So she decided not to vaccinate her second child, and Alhamdulillah, the second child, was better than the first. So these were the things that scared me"* (Informant 4)

Meanwhile, some parents specified that their rejection was due to the vaccine's content and *halal* status. They do not believe that the vaccine is *halal*, although it has been declared *Harus* by the Department of Islamic Development.

> *"Because I do not know the content of the vaccine"* (Informant 1)

> *"I am not taking it, because I am doubtful with its content. Because some say the bacteria is from non-halal bacteria"* (Informant 16)

Media influence

Some parents felt that content shared on blogs, Facebook, WhatsApp groups and individual books, provided reasonable grounds for refusing vaccination. A lot of these content being circulated demonstrate the harmful impacts of vaccines, and all of them can be accessed easily.

"Perhaps since I have got involved with this kind of things (WhatsApp group) and equipped myself with knowledge on these matters. That is the reason I decided with my husband, and we do not need to vaccinate our child because we felt that is the best for us" (Informant 4)

"Because I joined one group… That Facebook is secret" (Informant 17)

"I like to read one book from XXX, it has been translated as well, it is about the vaccine and his experiences with it" (Informant 8)

DISCUSSION

This study examined the internal and external factors that contribute to parental refusal of vaccine in Selangor. Some of them justified their refusal on their self principle. They were firm with their decision and confident that God will grant their good intent. This finding is consistent with Ruijs et al. (2012) who stated that parents who refuse vaccines referred to religious doctrine to justify their refusal, as their belief is that God is Almighty. Thus, these parents put all their faith in God and cannot be possibly persuaded by any medical justification to change their stand on vaccination.

Some refused vaccines based on their belief in alternative practices such as consuming *sunnah* or healthy food and homoeopathy. In Islam, Muslims are encouraged to eat honey, olive oil, dates and black seed (*Habbatus Sauda*), which have been found to improve the immune system, prevent diseases, and provide cure where applicable (Sulaiman et al., 2014). However, the protection conferred by these healthy foods is generic and not specific against infectious diseases (Vaksin Info, n.d.). As a result, replacing vaccines with a *sunnah* diet is not enough to stop vaccine-preventable infections. With regard to homoeopathy, Attwell & Smith (2017) concur with this finding as their study found the practices of Complementary and Alternative Medicine (CAM) such as Chinese herbs, herbalists, homoeopathy, acupuncture and chiropractors, are gaining widespread acceptance from parents. Thus, such parents become convinced to apply CAM as part of their parenting practices, including refusal of vaccination. Furthermore, many parents trust CAM because they regard it as natural, not harmful, non-synthetic, and seem to work for them. Therefore, these parents oppose western or modern vaccination despite the touted enormous benefits and prefer to use CAM instead for their health care.

Some parents shared their feeling of mistrust towards healthcare practitioners concerning vaccination. They perceive that the explanations given by healthcare practitioners are merely personal views and inadequate to change their decision to reject vaccination. Other studies found similar findings suggesting that parents are generally worried that healthcare professionals withhold vaccine details such as adverse effects, and that they are only informed about the benefits (Austvoll-Dahlgren & Helseth, 2010; Dubé et al., 2014; Harmsen et al., 2013; Saada et al., 2015; Blaisdell et al., 2015; Sobo et al., 2016). Any perception of withholding of information can provoke parents' outrage or reluctance to vaccinate their children (Bond & Nolan, 2011). Therefore, it is necessary to assess and design effective communication tools for all healthcare practitioners to improve public confidence, communicate their message with transparency, and handle challenging conversations with parents who refuse vaccination.

Regarding external factors, some parents in this study expressed concerns regarding domestic burden. These parents attribute their refusal to overcrowding and long waiting times in the hospital for getting vaccine jabs, which is aligned to the findings of Lim et al.

(2016) and Abdulraheem et al. (2011). Some parents felt that the vaccination schedule also disturbs their work and that they may incur costs for treatment if there were any side effects. Furthermore, they quoted difficulty taking time off from work for vaccine appointments, as supported by McNeil et al. (2019). Taking time off may result in their salaries being deducted. Therefore, employers, including private enterprises, should offer flexible, compensated time off for essential purposes such as vaccination. Moreover, government health clinics can also extend their working hours or offer more flexible appointments to accommodate parents' time constraints or conflicting work schedule to increase the immunisation compliance rate.

Findings also reveal that social pressure from partners, family, and close friends is another critical factor that can influence a parent to not vaccinate the child. According to Harmsen et al. (2013), parents are sometimes profoundly influenced by their relatives and friends with whom they discuss the issue. Similarly, other studies have also reported that vaccination can be associated with social pressure (Kennedy et al., 2011; Bish et al., 2011). This suggests that strategies to promote vaccinaton should be tailored to involve parents' social networks as they are prime influencers in the vaccination decision-making process.

Some parents follow their parents' tradition of not vaccinating their kids, which continues from one generation to another. While, some others heed the decision made by their wives. This finding is in line with Kara et al. (2018), who emphasised that it was mainly mothers (wives) who were the main decision-maker in their children's vaccination. However, men play a role too in childhood vaccination since most women do not make decisions without their spouse's consent. The husband's approval facilitates the vaccination process, for example, providing transport and expenses to go to the healthcare facility (Oku et al., 2017).

The parents interviewed also showed concerns regarding the discomfort and side effects associated with vaccines. They worry that their children might suffer from fever, swelling, loss of appetite, and brain problems, in the worst-case scenario. The finding is consistent with Kennedy et al. (2011) and Al-Lela et al. (2014), suggesting that getting sick is the most significant barrier to vaccinating a child. This misperception can be corrected by educating parents that mild sickness is not an Adverse Event Following Immunization (AEFI), nor is it an excuse to miss any vaccination. On the other hand, some parents relate vaccines to autism, a developmental disorder typically observed in children aged between 18 and 30 months (American Academy of Pediatrics [AAP], 2013). Concern about vaccines causing autism arose from claims that vaccines contain a mercury-based preservative called thimerosal, which is suspected to influence brain development (Kuwaik et al., 2014; Luthy et al., 2010). Nonetheless, this is misconception that needs to be cleared as most studies found no correlation between increased risk of autism and vaccination (Destefano et al., 2014).

Another reason cited for parental refusal concerns the vaccine's properties. The parents doubt whether the contents of the vaccine are safe and *halal* for their children. In their study, Paterson et al. (2018) found that one of the parents' concerns is the use of porcine gelatine in vaccines. Similarly, Lim et al. (2016) reported that parents are worried that the deoxyribonucleic acid (DNA) of pig, which is prohibited from being consumed or used in Islam, could be present in vaccines.

Nevertheless, the National Fatwa Council, Malaysia's highest Islamic body, has waived the stringent *halal* requirement and ruled that vaccination is permissible under Islamic law. It allows vaccines with non-*halal* components in the absence of *halal* alternatives. The vaccine is deemed *halal* and safe if the vaccine substance containing non-*halal* ingredients has undergone several purification and sterilisation procedures. Thus, the final product has extracted the impure elements (Zainudin et al., 2018).

Another reason for parental refusal of vaccination is the influence of popular media, such as blogs, WhatsApp groups, Facebook, and printed books. Virtual communities are accessible 24/7, cost nothing and are not subject to any regional or political restrictions (Krisvianti & Triastuti, 2020). These characteristics have made it easier for the generation and mass propagation of fake news amongst virtual communities (Tengku Mahamad et al., 2021). Such media content are created to generate sensationalism and may highlight a rare incident in which a child suffers due to a vaccine's unintended side effects to elicit higher viewership. When such news or content becomes viral, many parents become concerned and alarmed about the short-term side effects as well as the probability of long-term adverse effects (McKee & Bohannon, 2016). Similar studies elsewhere reported the same finding (Kuwaik et al., 2014; Smith, 2017; Schmidt et al., 2018; Palanisamy et al., 2018). Interestingly, a few informants disclosed a book revealing a conspiracy theory, which the book author had experienced himself. Similarly, Barbacariu (2014) stated that several misinterpretations can be found in anti-vaccination websites or books. Most of them include misleading evidence questioning the benefits and advantages of vaccination, such as eradicating smallpox and decreasing the cases of other infectious diseases.

There are a number of limitations for the present study. Firstly, this study was only confined to Selangor and was conducted among Muslims as it was difficult to get consent and participation from other races. Moreover, most vaccine-hesitant parents are Malays, as recorded by the health clinics; thus, the study does not fully encompass the country's cultural diversity. Secondly, the study covered only public healthcare facilities as only public facilities record parents who refuse vaccination. Thus, the findings might not reflect the experience of the private sector.

CONCLUSION

A resurgence in vaccine-preventable disease outbreaks such as measles, mumps and diphtheria has drawn scrupulous attention to the predicament of vaccine denial. The vaccine hesitancy controversy does not seem to be diminished by the continous debates over the advantages and disadvantages of vaccines. In fact, it is much feared that the rising number of vaccine refusals may lead to a nation's herd immunity to slowly collapse. Understanding the various reasons behind vaccine refusal, as deliberated by this study, can help the Ministry of Health to formulate comprehensive strategies to influence parental confidence and increase vaccination uptake. The strategy might include continuous education and awareness, persuasion, counselling, health practitioner training, and diversifying information sources.

ACKNOWLEDGEMENTS

We would like to thank the Director-General of Health and Deputy Director-General of Health (Research and Technical Support), Ministry of Health Malaysia, for permission to publish this paper.

COMPETING INTEREST STATEMENT

The authors declare that there are no competing or potential conflicts of interest in the writing of this paper.

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Zaikiah Mohd. Zin

has worked at the National Institute of Health for 15 years and has served the Ministry of Health for 23 years. During this period, she was involved in various research areas including e-cigarettes, traditional and complementary medicine, enhanced primary health care (EnPHC), transgender and MSM, cognitive, affective and behaviour domains related to COVID-19 and advanced care planning. Additionally, she had also developed an instrument for vaccines covering cognitive, affective and behavioural components.

Manimaran Krishnan (Dr)

has served in various departments in the Ministry of Health, including the institute, hospital, headquarters and Malaysian Health Promotion Board (MySihat). His specialisation is in health communication, psychology, health policy and health promotion. Now he leads the Institute for Health Behavioural Research, which focuses on researching health behaviour, as well as provides training and consultancy services in health promotion, health communication, and risk communication.

Sheikh Shafizal Sheikh Ilman

is now working at the Institute for Health Behavioural Research, Ministry of Health, Malaysia. He has been involved in various behavioural research involving qualitative and quantitative studies. Currently, he is working on a study entitled *Understanding the Views of the Malaysian Public Towards Decision Making for End-Of-Live Care, A Web-Based Survey*.

Norrafizah Jaafar

is currently working at the Institute for Health Behavioural Research, Ministry of Health, Malaysia. She is one of the experts in qualitative research at this institute. At present, she is the Principal Investigator for the qualitative study of *Exploring Psychological Impact among Adolescents due to Home School Learning during COVID-19 Pandemic*.

Mohamad Zaidan Zulkepli

is a former employee of the Institute for Health Behavioural Research, Ministry of Health, Malaysia. During his tenure, he was involved in many behavioural qualitative studies and was the Principal Investigator for the *Study of Health Information Seeking Among the Transgender and Homosexual Men in Kuala Lumpur and Kota Kinabalu*. Currently, he is working at the Sarawak General Hospital.

Khairulnissa Abdul Kadir

is currently working at the Institute for Health Behavioural Research, Ministry of Health, Malaysia. She has done a number of research studies in the field of media, communication, and behaviour. She is also an expert in sentiment analysis. Currently, she is working on the first Malaysian Healthy Lifestyle Index in Malaysia.

Normawati Ahmad (Dr)

is currently working at the Institute for Health Behavioural Research, Ministry of Health, Malaysia. In her many years of service, she had mostly dedicated her career to behavioural research. Her expertise is in eating behaviour, nutrition and physical activity. Currently, she is the Principal Investigator for a study called *Barriers Affecting Inadequate Intake of Fruits and Vegetables: An Online Survey Among Adolescents and Adults In Malaysia*.