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THE PERCEPTION, BEHAVIOURS AND ACCEPTANCE OF COVID-19 VACCINE AMONG MALAY SENIOR CITIZENS: A QUALITATIVE STUDY

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ABSTRACT

Despite concerted efforts taken since the launched of immunization campaign for Malaysians, the country still wary of individuals who consistently disputing the validity and legality of the vaccine. Further to that, there are also Malaysia citizens who do not believe in the effectiveness of the vaccine which lead to refusal in receiving it voluntarily. The study aimed to (i) to explore the understanding of the Malay senior citizens on health communication campaigns related to the COVID-19 vaccination programmes, (ii) to review the sources of information used by the senior citizens in obtaining information related to the vaccine and COVID-19, and (iii) to explore the behaviours of the senior citizens and their acceptance of the COVID-19 vaccine. The study involved 10 Malay senior citizens within the range age group of 55-65 years. In order to seek diverse insights on the information seeking behaviour and the preferred sources, the study focused on the influence of cultural, religious

diversity and the implementation of health communication campaigns by the government on the effectiveness of the COVID-19 vaccine. Further, the study also explored the level of understanding and perception on the effectiveness of COVID-19 vaccine among senior citizens. Qualitative methodology was applied using focus group discussion in the data collection, and NVIVO software was used for analysis. The study found hesitancy on the vaccine resulting from the unsure sources of information. Senior citizens from Malay community were very concerned on receiving the vaccine. Additionally, the result indicated that the national immunisation campaign is less effective especially to those who reside in rural areas. The majority of the participants obtained information sources related to vaccines and COVID-19 through social media compared to mainstream media. Inasmuch the overseas media provided more authentic information than the local media, it was equally significant that the informants also found the information by the National Security Council (MKN) and the Ministry of Health Malaysia (MOH) to be authentic and were always referred to.

Keywords: Health communication, vaccine, senior citizens, rural areas.

INTRODUCTION

A vaccine is produced from part or all of the structure of a virus or bacteria that has been turned off or weakened, or from a subunit protein in a virus. Antigens in vaccines serve to stimulate the immune system of infection (immunity system) of the body forming immunity against specific disease infections. According to the Ministry of Health Malaysia (2021), vaccines help the immune system by training these antibodies to identify certain germs so that the immune system is adequately prepared when the real germs strike into human body. Vaccines are prescribed to help stimulate the body's natural endurance system in reducing the risk of developing germs/ virus infections where it generally categorized into a number of types such as viral vector vaccine, inactivated virus vaccine, nucleic acid, live-attenuated virus vaccine, protein subunit vaccine, and toxoid vaccine. A vaccination is a simple procedure where it is safe and highly effective way to protect individuals from infectious diseases. In fact, it makes the immune system stronger and do not cause infection because it contains disinfectants/ viruses that are turned off or weakened.

A survey on social media sentiment on COVID-19 vaccines by the Health Education division (FMB) of MOH found that out of (67%) of respondents who received COVID-19 Vaccine in (95.7%) felt safe to use vaccine and a positive (89.6%) further believed that vaccines are effective in preventing infection. Meanwhile, (67.4%) of the respondents confident that the substance in the vaccine. The study also reported that total of (83.3%) agreed to take the vaccine and to that extent, (61.8%) agreed to take the vaccine even if they have to pay for cost of the vaccine (MOH, 2021). The findings of the study illustrated the confidence that Malaysians have on the vaccination programmes which could be positively attributed to the success of consistent awareness campaign on the importance of vaccines to society in combatting the COVID-19 pandemic.

Hitherto to acceptance rate of vaccine in Malaysia has shown tremendous progress that it is one of the leading countries in the world compared to the global vaccine acceptance rate in general. This augur well when correspond with the theory of diffusion of innovation (Rogers, 1976) which stipulates five types of categories of recipients pertaining to innovation encompassing the ‘innovators, early adopters, early majority, late majority and laggards’. Therefore, when dealing with the inception of innovation and product as important as vaccine, it is empirical that the government and its ministries educate its citizen using consistent health communication campaign. The mapping of the campaign should allow in the formulation of effective communication strategy that map the plan to address the acceptance and also rejection of vaccine among people. This awareness campaign should cognitively create a profound apprehension to the receiver of the message that it creates a ripple effect to allow for the entire community understanding of the importance of vaccine.

In relation to that, the formulation of constructive communication strategy must also provide sufficient information on vaccines in order to effectively maintain the perception on its acceptance that pave the way for behavioural changes among the anti-vaccines and those who are not convinced. This augur with the significance of seeking the relevant and correct information pertaining to vaccine that is highly relevant in today’s pandemic situation especially when it is abundant and readily available on social media. Sorensen et al. (2012) added this is where the health literacy components contribute to both sender (health communication campaign) and the receiver (individuals)

inasmuch the involvement of the process beginning from the searching of information, understanding the information, evaluating and finally exercising the said health information.

Problem Statement

The role of health communication in determining an individual's health status is largely determined by the individual's physical activity behaviour, diet and lifestyle. Since most diseases stem from human lifestyle practices, then health communication has a big role to convey a variety of information so that individuals can practice a healthy lifestyle and in turn have a good level of health (Lapinski & Rimal, 2005). According to Rimal (2003) the first step of health care and disease prevention is through the input of information that will trigger knowledge to bring about changes in attitudes and lifestyles of individuals. Meanwhile a study by Parrot (2004) found that health communication has an important role to assist in the process of information transfer from health authorities to the general public. Additionally, a study by Syed Alwi et al. (2021) indicates age has been identified as the strongest predictor of COVID-19 vaccine hesitance with respondents age 60 years and above were five times more hesitant compared to other age group in Malaysia.

Although health communication campaigns have conveyed much information about the importance of health care, the expected changes in health behaviours are too small (Witte, 2009; Snyder et al., 2004). Not all information conveyed by health communication campaigns is accepted by the public and used to change health practices. A study by Huang, Y., & Zhao, N. (2020) related to "A race for a better understanding of COVID-19 vaccine non-adopters" underscored the need for a deeper understanding of the subtle differences between vaccine users. Due the availability of a vaccine does not translate into its de facto use; a phenomenon that may be more pronounced in "Operation Warp Speed"- it is thereby important for public health professionals to fully understand their "customers" (i.e., end users of COVID-19 Vaccine) to ensure satisfactory vaccination rates and to protect society at large. "Operation Warp Speed" refers specifically to the American COVID-19 vaccine program, i.e. speed has been the focus (Foo et al., 2020) for most programs since the COVID-19 vaccine was first approved.

Although Malaysia has launched an immunization campaign for Malaysians, there are still some who try to dispute the validity and legality of the vaccine (Sualman, 2021). In addition, there are also Malaysians who do not believe in the effectiveness of the vaccine and are afraid to take it voluntarily. The information channelled to them is disputed for its authenticity and is said to have been manipulated by the source by the local media (Sualman & Othman, 2021). In addition, MOH also issued a warning that any party who does not agree with the COVID-19 vaccine injection not to run a campaign to reject the injection.

While the country is almost certain to be fulfilling the mission of (90%) vaccine acceptance for the second dose to curb the spread of the pandemic, these ‘voices’ seem to dispute the government’s actions even though it is seen as the best step in this challenging global situation. Among the reasons frequently thrown and repeated by anti-vaccination groups especially on social media sites are substances used when vaccine production is taken from illegal elements for Muslims such as pig DNA, WHO malicious conspiracy to reduce and control the world population, as well as Bill Gates’ billionaire plan to succeed ‘Pandemic’ (Sualman, 2020).

The heavy claims made by this group create uneasiness and weary the public, especially Muslims since Islam forbids its ummah from using illegal substances. Studies have also indicated that there are still many civilians, especially the Muslims in Malaysia are still unaware of the existence of the Fiqh Islami method specifically related to the issue of purification of substances in vaccines known as *Istihalah* and *Istihlak*. The study finds that the majority of participants obtained information sources related to vaccines and COVID-19 through social media compared to the major mass media such as television, radio or newspapers. Malaysian women are very concerned about their families and decision to receive the COVID-19 vaccine can pose a dilemma to them (Sualman & Othman, 2021).

On the reasons for people receiving vaccines were primarily due to increase protection with the belief that prevention is better than cure. This finding signalled that the health communication campaign on vaccination by the government has actually created awareness and educate the people. Among other vital findings of the survey also indicated that the people would like to reduce complication from the COVID-19, assisting the country in achieving her immunity, to

return to old norm, protecting the high-risk group such as the elderly, decree by the religious authority on the obligation to vaccine, social responsibility, most importantly the people are able to make uniform decision due to the availability of the information on media about vaccination.

Objectives of the Study

The objectives of the study are; to explore Malay senior citizen's understanding of COVID-19 vaccine-related health communication campaign; to review the sources of information used by Malay senior citizen to obtain information related to the COVID-19 vaccine; to identify Malay senior citizen's acceptance of the COVID-19 vaccine

METHODOLOGY

This study employs the selection of samples by purposeful sampling and is assisted by criterion-based selection, as well as implementing it by theoretical sampling. In this study, the sample was chosen deliberately because it has characteristics that can allow researchers to obtain a lot of information, detail and in-depth understanding of the problems and questions studied. This study ensures that all samples can provide answers to the things that are the objectives of the study. The sample should also take into account the diversity factors that exist for each sample in the hope that it will have a diverse effect on the data to be obtained (Ritchie et al., 2003). The theoretical sampling process means that the initial process is similar to other types of sampling, which is to select participants who meet certain criteria so that it is able to produce information-rich data. However, the number of informants or the sample was not determined at the initial stage of the study (Glaser & Strauss, 1967; Cannon, 1998).

It means a process of data collection to generate a theory in which the process of analysis is made one by one sample continuously. The data obtained from the first sample will determine the criteria of the next sample. If the data obtained are still insufficient for the purpose of generating and completing the theory, then the next sample will be selected and analysed. This process will run continuously until the researcher is satisfied that the selected samples have already produced data that can help him generate a theoretical development or form a new hypothesis. When data is collected continuously and theoretical

constructs are increasingly emerging then researchers try to exclude isolated cases that deviate (negative-case selection and discrepant-case selection) in the results of the study obtained.

Selection of Study Informants

Participants for this study were also selected using purposive sampling but below the maximum variation type as well as through a critical sampling process as described previously. Maximum variation sampling means that although the selected sample is small, but it is selected from various characters so that the results of the study are diverse (Meriam, 1998). Informants were selected based on criterion-based selection as follows: Malay Male and Female Age 60 years old and above Reside in urban and rural areas High and medium level of education and understanding of scientific terms Voluntarily participate in the study

Research Instruments: Researchers as Instruments

The ‘instrument’ of this study is the researchers themselves. This is because the researchers themselves are involved in all data collection processes from the beginning, namely tracking the field until the last activity in the field. According to Morse & Richards (2002), the role of researchers as research instruments is that they create data on events related to their research problems and questions. Data is in the self (insight) of a human being or events or materials that are the focus of one’s study.

Pre-Test

The first in-depth interview session was handled by the researcher which served as pilot. Audio and visual recordings were made and the recordings were transcribed and analysed to see whether the questions posed as well as the content of the discussion that had been obtained were sufficient to answer the problems and research questions. The analysis found that the data is sufficient to achieve the objectives of this study. The one-hour interview managed to produce themes which answered the the problems and research questions. Therefore, the data for this pre-test group were also used for the actual study. No corrections were made to the interview protocol and the researchers took special care of suitable and flexible ways when collecting the data.

Data Collection and Analysis Process

The technique of collecting the data for this study is by conducting focus group discussions (FGD). A total of 10 participants involved in the study and the theoretical sampling process was used to determine the number of participants involved. In line with the Movement Control Order (MCO) imposed by the Malaysia government, the two FGD sessions were conducted online using google meet platform. The researcher ensured the stable internet connectivity from both ends in audio and visual clarity during the data collection. The informants were informed of the anonymity and confidentiality of the identity and information throughout the session and they are allowed to voluntarily withdraw at any time. The FGD session was conducted from 22 February 2021 to 15 March 2021 online at the comfort of the informants' home. Table below illustrated the composition of focus FGD comprised of male and female informants based on the prescribed criteria:

Table 1

FGD Composition for Male

Informant	State	Academic Level	Course
P1	Selangor	Degree	Accounting
P2	Johor	Masters	Education
P3	Selangor	Degree	Business
P4	Perak	Degree	Education
P5	Johor	Diploma	Marketing

Table 2

FGD Composition for Female

Informant	State	Academic Level	Course
P1	Johor	Degree	Information technology
P2	Johor	Masters	Education
P3	Selangor	Degree	Business
P4	Johor	Degree	Education
P5	Johor	Masters	Education

Data were analysed simultaneously with the data collection process. Immediately after the completion of the data collection process for

the first group, the data were transcribed with the help of audio and visual recording materials. At each completion of the collection and transcription process, the data were analysed using the constant comparative method. Themes and categories are formed based on the research questions.

Validity and Reliability Strategies

To obtain the level of internal validity, the researcher has used a peer examination strategy. In order to obtain external validity, the researcher has chosen to make a detailed and information-rich report or rich and thick description. Detailed reports were provided in the study design section up to the data analysis process. The reliability strategy for this study was achieved through the trail audit method.

This qualitative study using interviews conducted in Malaysia involving 10 participating Malays senior citizen who worked in the technology sector, education and business. The influence of cultural, religious diversity and the implementation of health communication campaigns by governments and states on the effectiveness of COVID-19 vaccine and COVID-19 prevention have provided diverse and interesting insights especially in the information sources used by participants to apply the level of understanding of the effectiveness of COVID-19 vaccine.

In addition, information related to COVID-19 and the vaccine was obtained from various sources and the information received by them has led to the attitudes and behaviours of the participants towards COVID-19 as well as the national immunization campaign program related to the effectiveness of the vaccine. The use of this method is to capture rich descriptive data on how people think and behave as well as launch complex processes. Therefore, the 90-minute FGD session were utilised to explore understanding, attitudes as well as review sources of information related to COVID-19 and their acceptance of the vaccine. Analysis of interview data as primary data involves systematic processes such as preparation of field notes and transcripts, coding, tracking and constructing of main themes, constructing of sub-themes and sub-sub-themes (Welman et al., 2005).

Researchers should be open in the formation of this theme. The data released in the form of transcripts will then be formed verbatim data.

Verbatim of this data was entered using computer-assisted qualitative data analysis software, NVIVO to analyse the main themes and sub-themes involved and the analysis used is thematic analysis (Talib, 2019).

RESULTS AND DISCUSSIONS

A total of 78 quotations manifested from 2 focus group discussions conducted with senior citizens aged between 55 to 65 years old who reside at sub-urban and rural areas in Malaysia. Nine sub-themes were abstracted for further analysis alongside three pre-determined themes based on the objectives; (i) Understanding of health communication campaigns related to COVID-19, (ii) Source of information related to COVID-19, and (iii) acceptance and attitudes towards COVID-19 vaccination as a result from the exposure of the health communication campaign.

Each of these three pre-determined themes resulting in a total of nine sub-themes that further reinforce the findings. For theme one, the sub-themes were Information resulting from understanding of health communication campaign yielded 16 quotations, Knowledge on vaccination (9 quotations), and Type of activities recommended and known from exposure to health communication campaign (20 quotations). For the second theme, the sub-themes manifested were the Types of information (4 quotations), Source of information (12 quotations), and Information seeking behaviour (6 quotations). Finally, for the third theme, the sub-themes were Information that leads to the acceptance of vaccine (11 quotations), Vaccination issues (10 quotations), and finally the Type of activities that lead to the acceptance of vaccine (4 quotations). Table 3 illustrated the abstraction process of thematic analysis across two FGDs.

Table 3
Abstraction Process of Thematic Analysis

	THEMES		
	Understanding of health communication campaigns	Source of information	Acceptance and attitudes towards COVID-19 vaccination
SUB-THEMES			
1. Information from health communication campaign	16		
2. Vaccination knowledge	9		
3. Type of activities known and recommended resulting from exposure to health communication campaign	20		
4. Types of information		4	
5. Source of information		12	
6. Information seeking behaviour		6	
7. Information that leads to the acceptance of vaccine			11
8. Vaccination issues that lead to the acceptance of vaccine			10
9. Type of activities that lead to the acceptance of vaccine for self/ others			4

It is also relevant to note that the extraction of word frequency pertaining to the conversation and discussion led to the embodiment of all three themes; understanding of health communication campaigns, source of information, and acceptance and attitudes towards COVID-19 vaccination congruently manifested the importance of the health communication campaigns that correlate with the vaccine related information. In fact, the word *vaksin* (vaccine) were mentioned 150 times across the two FGD sessions with female participants repeatedly stressed on it 97 times, while male participants mentioned it 53 times. The second most mentioned word when discussing the understanding of the Malay senior citizens on health communication campaigns related to the COVID-19 vaccination programmes was *maklumat* (information) where it appeared times on both counts of FGD sessions with female (36 times) and male (43 times). Figure 1 provides the illustration of the word frequency.

Retrospectively, in spearheading the health communication campaign, it is obvious that the selection of media is very crucial to determine maximum reach. A study by Fauziah et al. (2012) noted that the current usage of new media has significantly complemented the globalization that facilitate the acquisition of new and improve information. To this end, media is seen as a powerful ally in raising audience’s conscience and awareness that could disseminate information and increase discourses among public.

Figure 1

Word frequency for Themes



The Understanding of the Malay Senior Citizens on Health Communication Campaigns

A total of 45 quotations were recorded in the abstraction of thematic analysis pertaining to the first theme; understanding of health communication campaigns which were gathered across the two FGDs involving eight individuals comprised of four males and four females. Sixteen quotations were obtained from FGD 1 which involves male participants while the remaining 26 quotations were female participants from FGD 2. Table 4 illustrated the co-occurrences of the quotations for theme 1; understanding of health communication campaigns.

Table 4

Co-occurrences for Theme 1 on Gender Distributions

Name	In Folder	Quotations	TOTAL
FGD Vaccine –MALE	Files	26	42
FGD Vaccine – FEMALE	Files	16	

Further analysis into the 42 quotations of theme 1 also saw the emergence of three new sub-themes that complimented the study into probing the understanding of the effectiveness that health communication campaigns among elderly at rural areas. The sub-themes emerged from the latent analysis of this study sufficiently reinforce the strength of theme 1 with 16 quotations yields from sub-theme 1 (Information resulting from understanding of health comm campaign), 9 quotations for sub-theme 2 (Vaccination knowledge resulting from various health comm campaign) and 20 quotations representing sub-theme 3 (Type of activities known and recommended resulting from exposure to health communication campaign). Table 5 illustrated the sub-themes and quotation for each.

Table 5

Co-occurrences of Sub-themes

Sub-Themes	Quotations
Information resulting from understanding of health communication campaign	16
Vaccination knowledge resulting from various health communication campaign	9
Type of activities known and recommended resulting from exposure to health communication campaign	20

The first sub-theme emerged was pertaining to the information resulting from the comprehension the health campaign run by various government agencies. This notion is vital even prior to the arrival of Web 2.0 and social media as mass media campaign can significantly play part to reach people directly with the preventive messages to create a powerful influence on individuals' awareness, knowledge and understanding of health and social issues (Bandura, 1994; Reid, 1996). The latent analysis into the transcripts of both FGDs representing male and female echoed similar view when it yields 16 quotations to support the importance of understanding the propagated health campaign in order for it to beneficially contribute in the cognitive development toward the COVID-19 vaccination programmes.

“...I gained a lot of information from the Internet, television, media, newspapers, and the public, friends, among others...”

(F: Ref. 3)

“... These information from various sources is very important to me. Therefore, with the information that I collected, I was able to share and spread with the community near me, especially among family members and neighbours...”

(F: Ref. 6)

“... It is from the information that I got from the media that it could help us to receive and understand the reasons or even opinions that could satisfy our curiosity into receiving the vaccine...”

(M: Ref. 4)

The second sub-theme emerged from the analysis of theme 1 was directly related to vaccination knowledge gained from the various health communication campaign that the elderlies were exposed to. With nine quotations to support the amplification of vaccine rate and acceptance among senior citizens in Malaysia notably at rural areas, it could be further testified that these campaigns had direct influence in motivating them to register for COVID-19 vaccine. There are copious of evidences that rightly pointed at how health communication campaigns help to increase awareness and knowledge which greatly contribute to change of attitudes and behavioural intentions of target audiences (Snyder et al., 2004; Schooler et al., 1998).

“... The vaccine is really good and must be taken by everyone. So far, I have not been influenced by any negatives words from the public...”

(F: Ref. 4)

“... I was initially a bit hesitant to register for the vaccine, but when I see on social media a lot of people my age has been vaccinated, shared their pictures and experiences (I was confident)”

(F: Ref. 14)

“... I found (from the media) that this vaccine acts as a shield to avoid me from contracting the virus...”

(M: Ref. 12)

The final sub-theme emerged from theme 1 also hovered around the ideation and formation of activities collected from the exposure that the senior citizens acted upon the health communication campaigns. With resounding 20 quotations from both genders of the FGDs, it clearly manifests the motivation and the social intervention that these campaigns seek out to produce. It is also evident that the idea of social intervention through various health communication campaigns served as catalyst to achieve the modification of behaviour. While the knowledge will influence the attitude, it must be cautiously aware by all stakeholders involved in the vaccination programmes that this may not necessarily translate into people registering or even coming to the vaccination centre (Pusat Pemberian Vaksin). Concerted efforts and continuous awareness programmes must be carried out effectively and consistently to ensure increase in the inoculation of COVID-19 vaccine among senior citizens.

“... I would recommend that Ministry of Health consistently send its officers to the villages and rural areas for continuous awareness activities related to the vaccination programmes...”

(F: Ref. 15)

“... If I get the information on the vaccine, I will discuss further with my children and family...”

(M Ref. 7)

“... I believe that the campaign on social media, electronic media should be continuously spread and post for awareness...”

(M. Ref. 1)

The Source of Information Used by the Senior Citizens in Obtaining Vaccination Information

A total of 22 quotations were recorded in the abstraction of thematic analysis pertaining to the second theme; the sources of information used by the senior citizens when searching for information on vaccine and COVID-19. These quotations were gathered across the two FGDs involving eight individuals comprised of four males with 11 quotations and four females represented by 10 quotations. Table 6 illustrated the co-occurrences of the quotations for theme 2; source of information used to obtain information on the vaccine and COVID-19.

Table 6

Co-occurrences for Theme 2 on Gender Distributions

Gender	In Folder	Quotations	Total
FGD Vaccine –MALE	Files	11	22
FGD Vaccine - FEMALE	Files	10	

The latent analysis on 22 quotations of theme 2 was further segmented into three new sub-themes which reinforced the importance of the campaigners to carefully select the source of information prior to posting it to the senior citizens. The sub-themes emerged from this analysis provide strength to the deliberations of theme 2 where sub-theme 1 (Types of information) was represented by four

quotations, sub-theme 2 (Source of information) with 12 quotations and finally sub-theme 3 (Information seeking behaviour) with six quotations. Table 7 illustrated the sub-themes and quotation for each.

Table 7

Co-occurrences of Sub-themes

Sub-Themes	Quotations
Types of information – vaccine, health, <i>Pusat Pemberian Vaksin</i> (PPV)	4
Source of information – social media, electronic media, print media, official media, word of mouth	12
Information seeking behaviour	6

The first sub-theme was directly related to the types of information seek by the senior citizens concerning vaccine and COVID-19 related issues. A survey by the Office of Disease Prevention and Health Promotion (2020) found that inasmuch health communication field and its campaign strategies are concerned, consumers and users always view health information seeking as part of simultaneous interaction that require assertiveness to ensure its influence in educating the public. This argument has effectively established throughout the FGDs held where both genders agreed that issues and information on vaccine and COVID-19 must be tackled immediately to avoid misinformation as well as misinterpretation by stakeholders.

“... I found the information from mass media, where at the beginning they were all very curious about the halal status of the vaccine...”

(F: Ref. 6)

“... There are also people (who read the information) said that when they have received complete dosages of the vaccine... so, if we meet people with COVID-19 symptoms (we know it will be a lot safer) ...”

(F: Ref. 7)

“... If the issues originated from the newspaper, I believed the government would still take it positively but when it comes from whatsapp group... yes, a lot of it came out very negative (about vaccine and COVID-19) ...”

(M: Ref. 7)

“...After that, there could be issues (or misunderstandings) regarding what has been informed and posted, and of course, the ministry would then go places (to give briefing and information... here, there are three places such as Bandar Penawar and Bandar Tenggara...”

(M: Ref. 9)

With source of information recognized as the second sub-theme emerged from the analysis of theme 2, it directly implied that type and source of information are extremely vital to the formation of effective health communication campaigns. An astounding, 12 quotations detailed out the origin of the information that the senior citizens from rural areas obtained the information on vaccine and COVID-19. This unswervingly indicate that the demographic group in the study is very conscious and highly aware of their surroundings that they seek information rather than waiting for family members to feed them with one. A study by Cotten and Gupta (2004) observed that health information seeking is one of activities that involve the searching and receiving information in order to reduce health uncertainties and boost self-esteem in health context. To this, Niederdeppe et al. (2007) in their study further inferred that the aim of health information seeking is dedicated to satisfactorily obtain relevant information related to individual's health.

“... Information was obtained from various sources, such as the Internet and mass media... from there, I found there are abundant of information. I also got the information from official sources since (I know) the news is regulated, and often this type of information could be obtained from various ministries...”

(F: Ref. 2)

“... I got the information on vaccine mostly from the Internet, news channels on the television... and if I'm not mistaken, there are also reports from the MKN... then of course from my friends, neighbours...”

(F: Ref. 3)

“... I too obtained (the information) from WhatsApp group since I do not spent much time on television... and more sources would be from the newspapers...”

(M: Ref. 5)

“... So, even if I read the newspapers, it will still be from the Internet (portal, online edition) and the most information I have gotten (so far) was also from WhatsApp group...”

(M: Ref. 6)

The final sub-theme emerged from theme 2 also hovered around the information seeking behaviour that the senior citizens embarked upon rifling through vaccine and COVID-19 related information. A total of 6 quotations were extracted under this sub-theme from both gender of the FGDs, where it significantly contributed to the strength of theme 2 of the study. It is interesting to note that most participants from both genders attributed the information seeking closely with the effectiveness of MySejahtera app that has been made compulsory for everyone in the country. Aside from that, doctors and physician on-site at the vaccination centre are noteworthy sources for the senior citizens go seeking first-hand information on vaccine and COVID-19. This augur with a study by Wilson (2007) which stated that in order to ensure effectiveness of message, communicators must be able to device a source that is both attractive and credible so the receivers would benefit greatly from it.

“... the volunteers and staff there are so efficient and quick with the task at hand, and I often seek information from the doctors on-site before and during the inoculation...”

(F: Ref. 9)

“... I believe the government has prepared a very good platform for people to get information... with MySejahtera, I found that it is a holistic system that it eases our burden (to seek information) as rakyat...”

(M: Ref. 10)

“... and now I am about to enquire how far the effectiveness and efficiency of MySejahtera app since there has been talked and complaint about people who has not been able to secure appointment for vaccination despite registering through it long time ago...”

(M: Ref. 11)

Acceptance of the COVID-19 Vaccine among Senior Citizens

A total of 25 quotations were recorded in the abstraction of thematic analysis pertaining to the third theme; acceptance of the COVID-19

vaccine among senior citizens residing in rural areas. Through carefully constructed two FGDs, these quotations were extracted from eight individuals comprised of four males with 12 quotations, and four females represented with 13 quotations. Table 8 illustrated the co-occurrences of the aforementioned quotations for theme 3.

Table 8

Co-occurrences for Theme 3 on Gender Distributions

Gender	In Folder	Quotations	Total
FGD Vaccine –MALE	Files	12	25
FGD Vaccine - FEMALE	Files	13	

These 25 quotations were later going through second layer of analysis to assess its relevance with the formation of the third theme. Through latent analysis, these quotations were divided into three sub-themes inductively. The sub-themes 1 (Information that leads to the acceptance) was represented by 11 quotations, sub-theme 2 (Vaccination issues that lead to the acceptance) with 10 quotations and finally sub-theme 3 (Type of activities that lead to the acceptance) with four quotations. Table 9 illustrated the sub-themes and quotation for each.

Table 9

Co-occurrences of Sub-themes

Sub-Themes	Quotations
Information that leads to the acceptance of vaccine	11
Vaccination issues that lead to the acceptance of vaccine	10
Type of activities that lead to the acceptance of vaccine for self / others	4

It is important to note that information is a powerful agent of change where it could create a positive modification of behaviour if the receiver receives strong evidence to the newfound knowledge regardless via face to face or mediated communication. When discussing effective communication campaign, Short et al. (1976) noted that the synchronous face to face communication and different type of media-related component involved in communication process

had a profound effect as to how it could significantly reduce ambiguity and uncertainty. Even more so in the context of health communication campaign in the time of pandemic such as COVID-19. Moreover, media related components to effective communication campaign would be the key determinant in ensuring the reachability and acceptance of the messages sent using various mass media platforms. Indeed, the 11 quotations from sub-theme 1 of theme 3 reinforced this notion that information could meaningfully led to the acceptance of vaccine among elderly in rural areas.

“... this is so because there are others who did not receive the full and accurate information (on vaccine) from relevant sources and campaign, and this made them hesitant...”

(F: Ref. 2)

“... if we look at our friends’ social media, they shared their selfies on vaccine and experiences taking it... and it is even more enticing that the information were largely positive... so, it eliminates any doubt...”

(F: Ref. 13)

“... (normally) if I get the information on vaccine (from various media), I would discuss with my children at home... especially those who stays nearby...”

(M: Ref. 2)

“... we read (newspapers), we listen to radio, and from what I gathered it was very positive... of course, not the negative ones... because if we read negative (information), we would get more worried...”

(M: Ref. 9)

Additionally, the 10 quotations of second sub-theme emerged from the analysis of theme 3 also has similar notion to the previous sub-theme whereby the vaccination issues could seriously affect the decision of senior citizens in getting vaccinated voluntarily. This further showed that the information curated from the health communication campaign by various government agencies must take into consideration of the impending issues surrounding people’s concern and hesitation to the vaccination programmes. As a matter of fact, Snyder (2007) also stressed that a key ingredient to successful health-related campaign

would essentially have the insertion of current issues encompassing a daily concern that the public matters most.

“... even before I was able to get the vaccination date, I often hear so many negative perceptions about vaccine... which I have avoided by having positive thinking resulting from sufficient information on vaccine...”

(F: Ref. 7)

“... we often hear that there are two kinds of information; the positive and negative... and this would normally very much depend on the source of the information... to me, it is important that we possess a good evaluation skill to the information... this would largely contribute from enough exposure to vaccination information...”

(M: Ref. 3)

“... if the issue came from the newspapers... I think that the source would be from the government and it would turn out positive in the end... but if the source came from Whatsapp group, I believe it could be very negative...”

(M: Ref. 7)

The final sub-theme emerged from latent analysis of theme 3 is the type of activities that lead to the acceptance of vaccine for self/others. Four quotations were extracted from the FGDs transcripts of both male and female senior citizens living in rural areas. The extraction of data on this sub-theme primarily observed the consequential and reciprocal activities upon receiving enough exposure on vaccine as well as the narrative of the shared experienced. Carleen (2009) highlighted that information sharing would evidently enabled the user generated content to be more conversational on social media platforms, where a more concerted approach in users' controlled and exchange of health related information could be realised in making a more informed decision. This means that the additional information and knowledge sharing from basic narrative of words of mouth to social media platform could contribute to wealth of information.

“...I would normally spread (the positive) information as much as I could especially to those closer to me (such as my family) ...”

(F: Ref. 2)

“... After receiving 2 doses, I would share my experiences with my neighbours who are yet to be vaccinated as well as those who incline to get the vaccination...”

(F: Ref. 11)

“... they would see and read my experiences (from WhatsApp group, social media) ... that this would make them more confident to get vaccinated...”

(F: Ref. 12)

CONCLUSION

Health literacy and effective communication eco-system prudently noted that knowledge, attitude, and practice would determine strategic campaign planning. This is so because it serves as a key factor that informs and influences individuals as social intervention to enhance their health by action as a result to the exposure of health message. At societal level, this will pave ways for adaptive social mechanism to holistically create an enable environment for government to implement the policy, legislation, economics, and technology plan that enhance community's health behaviour during and post COVID-19 pandemic.

The concerted effort in healthy lifestyle campaign must also involve other stakeholders in the time of COVID-19 to ensure the social capital could be mutually and beneficially shared. Topped with good governance, it would be essentially rewarding when dealing with senior citizens which pose equivocal health situations pertaining to their knowledge and attitudes towards vaccination programmes and COVID-19. In responding to this complex situation, the role that different stakeholder could play is no longer secondary when dealing with COVID-19 pandemic. It is also obvious that the proliferation of communication technology is highly relevant in today's context that it massively contributes in the increased interest on health-related information.

Cautiously, the information seeking behaviour that contributed to the increased search on social media platforms among elderly must also monitored to ensure authenticity and combat the misinformation. It is therefore evident in the that web 2.0 and social media platforms specifically is highly relevant in today's digital society regardless

of demographic groups where social engagement transcend basic communication. This in its essence would further challenge the governments to facilitate and equip the nations with in relevant infrastructures and facilities that could help to mobilise and increase the effort in running health communication campaigns on-site or on social media platforms.

The effectiveness of vaccine immunisation campaigns needs to be analysed in stages and divided into several phases of evaluation. Based on the findings of the study, the participants' understanding of COVID-19 was at a good level as the statements showed that the participants understood the effects of COVID-19 and the vaccine on themselves, their families and the local community.

Therefore, the findings of this study should be taken into account by those responsible to identify the target groups more clearly in order to channel information and conduct health campaigns. The registration rate for vaccination is not very encouraging at the moment, due to the 'wait and see' attitude among the people of this country. Therefore, continuous and systematic campaign efforts using "social marketing" should be a priority. A social marketing approach that covers products, promotions, venues, and prices can ensure that health campaigns are more comprehensive and effective.

The approach of registering through MySejahtera is also not enough. It is suggested that there should be a more comprehensive interpersonal approach. This is due to the digital divide whereby some places do not get internet coverage especially in rural and inland areas. The study also suggests that campaigns targeting women be created because of the uniqueness of women who are at risk if they do not know the effects of vaccines on them specifically.

Messages and promotions as well as special clinics can be created to provide information as well as having specific vaccination segments for senior citizen. Future studies can be expanded in scope by focusing on participants who are in the B40 group and have low levels of education to gain understanding of vaccine reception in that group. Besides that, entertainment education initiatives by using PCI Media, BBC Media Action, and Sesame Workshop can be examples of initiatives to be adopted and modified towards greater immunisation campaign among senior citizen in Malaysia. Overall, this study found that the need for

information on diseases and vaccines is very important for receptive decisions among senior citizen. Although this is a qualitative study, the findings of this study highlight the real problems faced by senior citizen regarding the COVID-19 vaccine.

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