ORIGINAL ARTICLE

Perception of youth in East Malaysia (Sabah) towards the Malaysia national covid-19 immunisation programme (PICK)

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ABSTRACT

As a measure to curb the deadly Covid-19 virus, the Malaysian government has implemented the National Covid-19 Immunisation Programme (PICK) in early February 2021 to achieve herd immunity by February 2022. However, several factors have influenced the success of the programme, including accessibility, the role of social media, religious concerns and a variety of other reasons. Therefore, this paper determines the factors that influence the perceptions of the youth in East Malaysia (Sabah) towards PICK. This study uses a self-administered questionnaire through social media applications. A total of 814 respondents consisting of youths in Sabah aged between 18-40 years have been sampled. The raw data have been descriptively analysed (K-Means Clustering, Mean & frequency) and inferentially examined (Mann-Whitney U Test). The respondents' perceptions are grouped into two clusters: Cluster 1 (54.3%) who exhibited vaccine hesitancy, and Cluster 2 (45.7%), who demonstrated positive perceptions towards the programme. Based on the cluster analysis, this study discovered that most of the respondents in Cluster 1 are inclined to not participate in PICK due to several factors, such as Safety (M=3.25, SD=0.578), Communication (M=3.37, SD=0.441), Psychology (M=3.40, SD=0.568) and Milieu (M=3.32, SD=0.545). The cluster analysis is important to determine different patterns of perceptions of youth in Sabah. This paper argues that if vaccine hesitancy, as indicated in the cluster 1 is not properly addressed, the government's target to achieve herd immunity will not be successful. Apparently, information issues and management through the mainstream media are extremely important, especially in handling critical matters. As a result, there is a need to revisit the mainstream media's role and determine the causes that contribute to the youths' rejection of government-sponsored initiatives. The findings will be useful for the government so as to implement the necessary policies, adjustments and improvements to future health regulations or campaigns, especially in addressing issues of misinformation related to health management in the digital era.

Key words: Covid-19, PICK, East Malaysia, vaccine, youth
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INTRODUCTION

The Covid-19 virus is an ongoing pandemic caused by the acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It was first identified in December 2019 in Wuhan, China.[1] Spreading rapidly around the world, it was declared a public health emergency in January 2020 and a pandemic by March 2020 when more than 200 countries were affected by this virus.[2] By mid-July 2021, almost 200 million confirmed cases and over four million deaths were reported due to Covid-19.[3]

In Malaysia, the first confirmed case of Covid-19 from China was on 25 January 2020. While the outbreak was initially limited to imported cases, several local clusters had emerged in March 2021, most notably among the Tablighi Jamaat religious gathering in Kuala Lumpur, which caused a massive spike.[4] However, several events afterward, such as the Sabah state election in September 2020, high infection among Top Glove factory workers in late 2020 and a series of festivals in early 2021, further increased infection rates throughout Malaysia. Until mid-July 2021, the total number of cases had risen between 9,000-13,000 cases per day.

For most countries, developing a safe and effective vaccination is considered as the long-term solution to the Covid-19 pandemic.[5] The use of vaccines has proven to be a critical tool in curbing the threat of the disease, serving as the most cost-effective public health management tool in preventing the spread of the virus.[6-7] Not surprisingly, until April 2020, more than 100 types of Covid-19 vaccines were developed, several of which have advanced to human trial testing.[8]

However, as other studies have shown, 80-90% of a country's population must be vaccinated to achieve herd immunity.[9] Another study suggested that eliminating the Covid-19 infectivity with 100% efficiency will require 67% of the population to be vaccinated.[5] Low vaccination response could make it exceedingly difficult to reach the herd immunity threshold through vaccination.[10] As a result, the country must overcome several obstacles, including difficulties in obtaining vaccines[11], expensive vaccine prices[12], accessibility barriers[13] and other factors which impede the government's ability to achieve herd immunity. Another main problem that must be addressed is the perceptions of the population who reject the vaccine, also known as vaccine hesitancy. As a result, the World Health Organisation (WHO) listed vaccine hesitancy as one of the top 10 global threats of 2019.[12, 14] It is worth noting that vaccine-related behaviours differ in form and severity depending on the group, religion, cultural background, country, etc. While most of the global population still accepts vaccination, there is a growing number of people displaying various acceptance and rejection behaviours.[15] Therefore, understanding the rejection factors of immunisation is critical since it can thwart efforts in curbing the threat of the disease.[16]

In line with WHO's policy to contain the virus through herd immunity[6], the Malaysian government officially started the National Covid-19 Immunisation Programme (PICK) on 24 February 2021.[17] This programme has been voluntarily provided, free of charge, to the Malaysian population. In June 2021, the government stated that with steady and fast deliveries of all three approved vaccines (Pfizer-BioNTech, Sinovac and AstraZeneca), the country will be able to vaccinate 80% of its population, thus achieving herd immunity against Covid-19 by February 2022.[18-19] Various policies and measures have been implemented to delay the Covid-19 infection to ensure that the health system is able to cope with the number of patients before PICK reaches its target.[20-21] This ensures that the national health system will not collapse before herd immunity can be achieved. These measures and policies include non-medical measures such as

domestic travel restrictions or complete lockdowns, strict border control, emergency powers, bans on mass gathering events and other measures. Medical responses were also established such as the compulsion to wear face masks in public, mass testing, the setup of massive treatment centres and vaccination programme.[19, 1]

Based on PICK records, from 32 million Malaysians, 13,757,093 have registered in this programme either through *MySejahtera* (a government-administered mobile phone application) or through a website by 11 June 2021. Of these numbers, 2,929,736 individuals were successfully vaccinated. From this figure, Sabah is the state with the lowest vaccination registration rate in Malaysia. In Putrajaya, for example, registration has reached 100%, while Selangor and Kuala Lumpur have reached more than 70%. Other states such as Johor, Labuan, Melaka, Sarawak and Penang attained more than 60% registration under this programme.

In Muslim populated states of Kelantan, Kedah, Pahang and Terengganu, more than 40% of their population had registered in this programme. Unfortunately, in East Malaysia (Sabah), only 22.80% have registered. Of that number, approximately 7.6% of the population have been vaccinated.[22] Until 16 July 2021, only 13% have been vaccinated, in which 11.8% received Dose 1 and 8.9% received Dose 2[23], far from the government target. This situation is critical because the government will find it difficult to achieve herd immunity by vaccinating 80% of its population by February 2022.[18-19] However, with the number of infections as high as 13,000 a day during July 2021[24] with expectations of 20,000 cases within two weeks[25], the government warned the country that the health system will collapse at any time.[20-21]

One of the main obstacles in achieving herd immunity in Malaysia is dealing with the country's largest population, namely, the youth. The term "youth" has been defined in several ways. The Commonwealth for example, defined the youth as those who are between 15 to 29 years old.[26] However, the United Nations (UN) clearly spells out that there is no universally agreed international definition of the youth age group as it varies in different societies around the world. For statistical purposes, however, the UN, "without prejudice to any other definitions made by the Member States, defines youth as those persons between the ages of 15 and 24".[27] Meanwhile, the United Nations Population Fund (UNFPA) (2018) also recognises that there is no consensus on an age-based definition of youth, as it is determined by many factors depending on organisations and regions.[28] Therefore, although the UN's Resolution 2250 stated that the age of youth is in the range of 18–29 years, it however may not apply to other member countries. This is also explained why within UN entities, there are differences regarding the youth age categories. UN Secretariat/UNESCO/ILO for example, defined youth are those between 15-24, UN Habitat (Youth Fund) (15-32); UNICEF/WHO/UNFPA (15-24)[27] and the African Youth Charter defines youth or young people shall refer to every person between the ages of 15 and 35 years.[29] Therefore, it is not surprising when there are different definitions of 'youth' in countries around the world - Singapore for example, defined youth as those who are aged between 15 and 35. Developed countries have opted for a more stringent policy in defining youth age groups, such as the UK (between 14 and 25), Australia (12 and 24), and Canada (16 and 23). These differences make standardised or accurate quantitative data gathering on youth very difficult.[28]

Similarly, in Malaysia, the definition and categorisation of youth also vary. For example, in the political and electoral domains, Malaysian voters are

classified into three main age groups: youth, adults and the elderly. In this categorisation, the youth are defined as the individual group aged 18-40 years old.[30] Meanwhile, the National Youth Development Policy (1997) defined youth as persons aged 15-40 years, whereas the National Youth Policy (2015) which replaced it redefined youth as those aged between 15 and 30 years. At the same time, the Youth Societies and Youth Development (YSYD) Act 2007 defined youth as persons aged 15 to 40 years of age.[31] In July 2019, an amendment to that law was passed by Parliament that lowered the upper age from 40 to 30. However, until the act is expected to be gazetted in December 2021, this age limit of youth sparked debate and contentious. The Malaysian Youth Council (MBM), the largest national umbrella body of youth organisations in Malaysia, was against the proposal, arguing that 35 was a more acceptable age.[32] The youth leaders argued that lowering the age limit needs to be done in phases to allow the Youths organisations in Malaysia to prepare for the changes.[33] As a result of these youth 'age-group' definitions, this study employs the age range of 18-40 years as a group in the young category in the Malaysian context. This youth age range categorisation utilised in this paper is also consistent with several other studies by the Malaysian researchers.[34-35]

In 2018, for instance, it was estimated that over 43% of Malaysia's population (roughly 30 million people) ranged between the ages of 15 and 40.[30] Therefore, the government needs their support to ensure that the nation can achieve its target. However, in April 2021, a poll by Quinnipiac University in the United States revealed that about 36% of youth under the age of 35 say they do not plan to get a Covid-19 vaccine.[36] If the youth who represent the largest population group in Malaysia do not participate or support the government's vaccination programme, the country will never reach herd immunity and other populations will be exposed to vulnerabilities. This issue becomes increasingly worrying when Malaysia's health ministry records projected a rising trend of severe cases of Covid-19 infection among younger people as compared to older people.[37] Therefore, this paper focuses on the perception of the youth in the state of Sabah in East Malaysia, concerning receiving the Covid-19 vaccine and determines the factors that influence the negative perceptions of this group towards the government's vaccination programme.

METHODS

This study is quantitative in nature, therefore, the survey method (cross-sectional survey) of self-administered questionnaires through google form was applied during data collection. The purposive sampling technique was utilised in the sample selection process. Only individuals with youth status are eligible to be sampled in this study. A total of 814 respondents consisting of youths in Sabah were sampled in this study. The number of samples was determined based on the table proposed by Adam.[38] Therefore, based on this calculation, a sample size of 814 respondents in this study is sufficient to represent the total youth population of Sabah, which amounted to 491,637[39-40] since it has already exceeded the minimum sample size of 463 respondents with a 99 percent confidence level. All respondents in the study were between the ages of 18 to 40 years. This is consistent and in accordance with several previously discussed definitions of youth in Malaysia, which defined youth as people aged between 15 to 40 years old. The study was conducted for about two weeks, from 30th March to 15th of April 2021. The questionnaire was in the form of a Likert scale with five answer choices: '1= strongly disagree' to '5 = strongly agree'.

The raw data collected was then descriptively and inferentially examined. Data was descriptively analysed using the K-Means Clustering, Mean and Frequency. Raw data was inferentially analysed using the Mann-Whitney U Test. The K-Means Clustering analysis was employed to group respondents into two clusters according to their function to produce groups of variables with either high or low degrees of similarity within each group.[41] The aim is to examine the perceptions of youth towards PICK based on the clusters formed. The Elbow and Silhouette methods can be applied to determine the best number of clusters.[42-43] Therefore, in this study, the Elbow and Silhouette graphs have been generated using the machine learning analysis (Python) to determine the best number of clusters. Based on these graphs, the best number of clusters found is two (Figure 1).

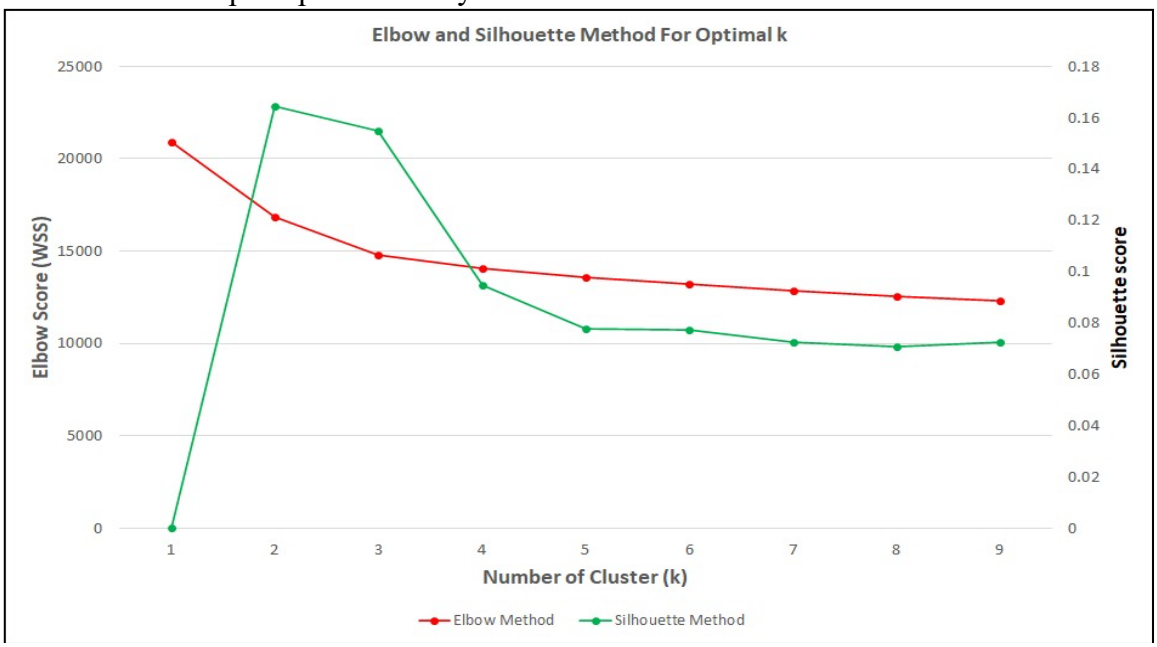

Figure 1 Determination of the best number of clusters

Once the cluster formation is complete, the next step is to identify the Mean value of each variable. The mean values were divided into two categories (levels) to simplify data interpretation. The mean value clustering category in this study was adapted from Jamil[44], who suggested that low-level clustering ranges between 1.00 and 2.33, medium-level clustering is between 2.34 and 3.66, and high-level clustering is between 3.67-5.00. The following process is the application of the Mann-Whitney U Test to identify whether or not a significant relationship is present between demographic characteristics and respondents' reactions to PICK acceptance in Sabah. Justification was accomplished using the Mann-Whitney U Test since data distribution in this study is abnormal in shape. The Kolmogorov-Smirnov test readings found that the P-value of each variable is less than 0.05. Respondents' reactions were measured based on four main factors or variables: safety, communication, psychology and milieu (refer to Figure 2).

Factors Affecting Youth Reactions Towards the PICK			
Safety	**Communication**	**Psychology**	**Milieu**
Sa1) Not convinced with the legality status (*halal*) of the vaccine. **Sa2)** Vaccine is not safe for my body. **Sa3)** Another alternative method is safer compared to the vaccine. **Sa4)** Waiting for vaccines that are safer in the future. **Sa5)** Not convinced if vaccines can prevent Covid-19 transmission.	**Co1)** Limited information regarding the programme. **Co2)** Limited information regarding the vaccines. **Co3)** Vaccine-related information in the mainstream media is not convincing. **Co4**) Vaccine-related viral issues influenced me not to take the vaccine. **Co5)** Internet access prevented me from registering for the programme. **Co6)** Difficult registration process for the programme.	**Ps1)** I am scared of getting an injection **Ps2)** Less interested as many recover without vaccines. **Ps3)** Practice of SOPs is sufficient to prevent transmission of Covid-19 without vaccines. **Ps4)** Still worried about being infected even after being vaccinated. **Ps5)** Vaccines are just a conspiracy.	**Mi1)** Objection from families to taking the vaccines. **Mi2)** Taking vaccine only on job demands. **Mi3)** Taking vaccines only when it is compulsory. **Mi4)** Taking vaccines for the desire to go overseas. **Mi5)** Taking vaccines only when most people have been vaccinated.

Figure 2 Variables used to determine the reaction of Sabah youth to the vaccination programme

RESULTS

Socio-Demographic Profile of Respondents Based on Clusters

The views of the youth in Sabah regarding PICK can be generally grouped into two clusters: Cluster 1 and Cluster 2. The percentage rate of the total respondents between the two clusters was found to be different. The number of respondents in the Cluster 1 category is 442, equivalent to 54.3% of the total sample in this study. The remaining 45.7% (372 respondents) belong to the Cluster 2 category.

This study observed that the percentage of enrolment status for the two clusters is unbalanced. The highest rate of youth who registered for PICK is in Cluster 2. Of the total number of respondents in the Cluster 2 category, it was found that 79.8% of them have registered. The percentage of youth who registered for vaccination in Cluster 1 is about 34.6% (153 respondents). It was also found that more than half of the total percentage of respondents in both categories of Cluster 1 (56.6%) and Cluster 2 (60.2%) were women.

From the aspect of religion, the percentage of Muslim youth was found to be highest in the Cluster 1 category (69.5%) compared to Cluster 2 (56.2%). It was further noted that most of the youth in both clusters are single. The total percentage of single respondents for Cluster 1 and Cluster 2 is 71.7% and 69.1%, respectively. For the level of education, almost all respondents are university graduates. The highest percentage of university graduates is in the Cluster 2 category (79.2%). Based on the employment status, it was found that students dominated both clusters (Cluster 1=34.2%, Cluster 2=31.7%) (refer to Table 1).

Table 1 Demographics of respondents by cluster

Item	Category	Cluster 1		Cluster 2	
		Frequency	%	Frequency	%
Registration Status	Registered	153	34.6	297	79.8
	Not Registered	289	65.4	75	20.2
Gender	Male	192	43.4	148	39.8
	Female	250	56.6	224	60.2
Religion	Muslim	307	69.5	209	56.2
	Others	135	30.5	163	43.8
Marital Status	Single	317	71.7	257	69.1
	Married	125	28.3	115	30.9
Educational status	University	293	66.3	295	79.3
	Non-University	149	33.7	77	20.7
	Civil servants	55	12.4	96	25.8
Employment Status	Private sector	113	25.6	72	19.4
	Self-employed	74	16.7	51	13.7
	Housewife	21	4.8	14	3.8
	Student	151	34.2	118	31.7
	Unemployed	28	6.3	21	5.6
Total by Cluster		442	100	372	100
Total Sample		n= 814 (100%)			

Perceptions of Youth Respondents in Sabah Towards PICK

As explained earlier, perceptions related to vaccine reception among the youth in Sabah were assessed based on four main factors: safety, communication, psychology and milieu. Based on Table 2, it was noted that there are differences in perceptions among youths in Sabah regarding the programme.

Respondents in the Cluster 2 category were found to have a positive perception towards PICK as compared to Cluster 1. This is proven by the low mean values of Cluster 2 for both the safety factor (M=2.31, SD=0.47) and the psychology factor (M=2.06, SD=0.60). For the communication factor (M=2.65, SD=0.60) and milieu (M=2.79, SD=0.70), both have attained moderate levels. Cluster 1 presented a negative response to PICK compared to Cluster 2 where four factors have a moderate mean value: Safety (M=3.25, SD=0.58), Communication (M=3.37, SD=0.44), Psychology (M=3.40, SD=0.57) and Milieu (M=3.32, SD=0.55). However, suppose both these clusters are combined and the evaluation only focuses on 4 main factors influencing youth perception, it can be seen that negative perceptions and vaccine hesitancy are heavily influenced by a milieu or surrounding factors (Mean=3.08, SD=0.67). This is followed by the communication factor (Mean=3.04, SD=0.63), the safety factor (Mean=2.82, SD=0.71) and the psychology factor (Mean=2.79, SD=0.88). Based on the data, it is suggested that milieu, or social setting as a whole, plays a crucial role in developing Sabah's negative youth perceptions of PICK.

Table 2 Youth perceptions in Sabah towards PICK

Aspect	Item	Cluster 1			Cluster 2		
		Mean (M)	Std. Deviation (SD)	M & SD	Mean (M)	Std. Deviation (SD)	M & SD
Safety	Sa1	2.65	1.12		1.55	0.55	
	Sa2	3.13	1.13	3.25	1.72	0.64	2.31
	Sa3	3.73	0.83	&	3.06	1.05	&
	Sa4	3.90	0.86	0.58	3.61	1.03	0.47
	Sa5	2.81	1.10		1.59	0.53	
Communication	Co1	3.78	0.78		3.11	0.99	
	Co2	3.86	0.80	3.37	3.35	0.94	2.65
	Co3	3.88	0.76	&	3.05	0.97	&
	Co4	3.45	1.01	0.44	2.29	1.06	0.60
	Co5	2.93	1.13		2.44	1.09	
	Co6	2.33	1.08		1.67	0.76	
Psychology	Ps1	3.10	1.21		2.03	1.06	
	Ps2	3.70	0.88	3.40	2.16	0.89	2.06
	Ps3	3.72	0.95	&	2.57	1.08	&
	Ps4	3.19	1.15	0.57	1.69	0.65	0.60
	Ps5	3.27	0.97		1.86	0.90	
Milieu	Mi1	3.13	1.17		1.92	0.93	
	Mi2	3.24	1.03	3.32	3.08	1.24	2.79
	Mi3	3.69	0.97	&	2.98	1.12	&
	Mi4	2.88	1.14	0.55	2.89	1.30	0.70
	Mi5	3.64	0.95		3.07	1.15	
Sample Size		n=442 (54.3%)			n=372 (45.7%)		
Total Sample		n= 814 (100%)					

The Impact of Demographics on Sabah's Youth Perceptions Towards PICK

Based on the Mann-Whitney U Test, for the safety factor, there is a significant difference between respondents who have not registered with those who have registered in the Cluster 1 category (P=<0.001). This clearly indicates that respondents in the Cluster 1 category who have yet to register to participate in this programme tend to be more negative (MR=243.98) than respondents who have registered in this programme (MR=179.03).

For the communication factor, it was found that there is a significant difference between male and female respondents for Cluster 2 (P=0.020). Male respondents were more positive towards the programme (MR=202.44) than female respondents, who tend to be more negative (MR=175.97).

From a psychological aspect, the Mann-Whitney U Test found that only Cluster 1 demonstrates a significant difference between several demographic factors and respondents' perceptions towards the programme. In terms of gender, for instance, female respondents have a more positive perception of the programme (MR=207.08) compared to the male category (MR=240.28). A similar finding can be identified in the context of 'Registration Status' (P=0.001). The group registered in the *MySejahtera* application was more positive towards the programme (MR=193.35) than those who have not yet registered (MR=236.40).

Based on the milieu factor, it was found that there is a significant difference between respondents who had registered for vaccines and those who had not in the Cluster 1 (P=0.016) and Cluster 2 (P==0.024) categories. In this case, the group enrolled for vaccines in the Cluster 2 category was more positive (MR=180.20) than the group who have yet to register for the programme (MR=211.47). In contrast to Cluster 1, the group that had registered for the vaccine was seen to be more negative-minded (MR=241.49) compared to the group that had not yet registered (MR=210.92).

Table 3 Demographic factors and Sabah's youth perceptions towards PICK

Factors	**Demography**		**Cluster 1**		**Cluster 2**	
			Mean Rank (MR)	P-value	Mean Rank (MR)	P-Value
Safety	Gender	Male	230.82	0.175	192.16	0.402
		Female	214.34		182.76	
	Marital Status	Married	229.49	0.405	187.55	0.898
		Single	218.35		186.03	
	Registration Status	Registered	179.03	<0.001 *	181.33	0.061
		Not Registered	243.98		206.99	
Communication	Gender	Male	228.40	0.316	202.44	0.020*
		Female	216.20		175.97	
	Marital Status	Married	217.03	0.642	188.19	0.838
		Single	223.26		185.74	
	Registration Status	Registered	224.61	0.708	182.31	0.133
		Not Registered	219.85		203.09	
Psychology	Gender	Male	240.28	0.006*	184.02	0.716
		Female	207.08		188.14	
	Marital Status	Married	215.87	0.558	196.71	0.218
		Single	223.72		181.93	
	Registration Status	Registered	193.35	<0.001 *	183.19	0.234
		Not Registered	236.40		199.62	
Milieu	Gender	Male	231.77	0.135	195.53	0.186
		Female	213.61		180.53	
	Marital Status	Married	215.07	0.502	188.92	0.770
		Single	224.04		185.42	
	Registration Status	Registered	241.49	0.016*	180.20	0.024*
		Not Registered	210.92		211.47	

Mann-Whitney U Test (P-value) at the level of significance (α=0.05)

DISCUSSION

This study found that most of the youth in Sabah, particularly in Cluster 1, are hesitant to get vaccinated (Table 2). If the current refusal trend continues, the government's planned goal of achieving herd immunity by February 2022 will be unsuccessful. Evidence of this rejection can be seen when the negative percentage is very high, especially in Cluster 1,

representing more than half of respondents in this study (refer to Table 2). The respondents' negative perceptions and rejection of the vaccine in Cluster 1 of this study are not uncommon since a similar trend can be seen in other countries. Not surprisingly, previous studies have demonstrated that vaccine hesitancy is a phenomenon that not only occurs in developing countries such as China[45], the Middle East[46] and several other countries around the world [1, 47, 48, 49, 50], but also in developed countries like North America [51-52] and Europe.[53, 14] It occurs among ordinary citizens[15] as well as among health workers.[54-55] This trend suggests that no single factor can explain vaccine hesitancy since numerous factors influence it.

This study also discovered that the gender factor substantially impacts the youth perception towards the immunisation programme, with the female group being more positive than the male group. A similar trend can also be seen for respondents who have registered in the *MySejahtera* application or webpage provided by the government. Most registered respondents were noted to be more positive towards the programme than those who have not yet registered (Table 3).

This study further discovered that vaccine hesitancy and negative perceptions toward PICK among Sabah youth are influenced by the belief that they may recover without immunisations (Table 3). The two key factors that strongly influence this perception included the role of social media, which provides lots of information concerning vaccine failures in regulating this problem, as well as unregulated misinformation transmission, mainly through social media.[56] Because of this misinformation, many respondents believe they do not need to be vaccinated since immunisation does not ensure immunity from the disease. The government seeks to control this matter through various methods, either through legislation or public notification. The case where a medical doctor was convicted for stating that vaccines will not provide a guarantee of safety from the Covid-19 infection is a clear example of this law enforcement.[57] The Malaysia National Security Council regularly provides text messages to all mobile phone users daily to inform them about the vaccination programme, further requesting not to spread false information about PICK.

The perception that the mainstream media is untrustworthy (M=3.88, SD=0.76) is also seen as one of the significant contributors to vaccine hesitancy and rejection of the programme. This shows that the government has failed to use the mainstream media to attract young people to participate in the national vaccination programme. It is proven that this element was the deciding factor in their rejection of the programme. This issue is inevitable since young people are the primary users of several alternative media, making it difficult to receive the information channelled in the mainstream media. The emergence of anti-vaxxer groups[58], misinformation, fake news[59], conspiracy theories[16] and several other issues also became significant concerns in Malaysia. In this case, the youth are among the primary recipients of such misinformation, causing most of them to refuse vaccination.[37] To deal with this issue, the Malaysian government has threatened to use several laws, including the Sedition Act 1948, Communications and Multimedia Act 1998 and laws and regulations under the Emergency Ordinance 2021 to curb this problem.[60] On 11 March 2021, the Malaysian government issued the Emergency (Essential Powers) Ordinance. The Ordinance criminalises the dissemination of fake news related to Covid-19.[61] The Malaysian government had established the Malaysian Communications and Multimedia Commission (MCMC) in 1998, an entrusted body, to regulate and deal with misinformation since it recognised the

difficulty in managing such problems. Despite a number of initiatives and regulations aimed at managing the problem, it has yet to be fully resolved. This raises the question of whether or not this body can function properly. In this regard, we argue that any government effort to strengthen a policy must also include the private sector. The private-public collaboration is therefore considered to be a viable solution to the problem. Relevant telecommunication companies such as Telekom, DIGI, Maxis and others can substantially reach the targeted aim. The issue of misinformation must be appropriately addressed to ensure that it does not pose a problem to the government in the future. This paper argues that since vaccine hesitancy originates from communication issues, it must be handled through communication strategies. This result is in line with the outcomes of other preliminary research which found that social media plays a vital role in increasing population confidence towards any programme.[62]

CONCLUSION AND RECOMMENDATIONS

In conclusion, this study proves that the rejection and reluctance of the vaccination programme organised by the government by the youth in the state of Sabah is an issue that must be focused on. Recognising that the youth represent a large number of the Malaysian population, failure to convince this group to participate in the vaccination programme organised by the Malaysian government will hinder Malaysia's efforts to achieve herd immunity. As a result, this study concludes that the government should re-evaluate the mainstream media's role and pay attention to the factors contributing to youth rejection of government-sponsored programmes. This study also shows that in developing countries such as Malaysia, misinformation issues and information management through the mainstream media are essential, especially in overseeing critical issues. It is hoped that the study on youth perceptions of the government's vaccination programme can be used to understand the needs and desires of the youth and the young generation in Malaysia. The findings of this study can be used to assist the government in implementing relevant policies, policy adjustments and improvements to health policies or campaigns in the future, especially in addressing issues of misinformation related to health management in the globalised era.

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