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Malaysian Perception on MMR Vaccination Towards Children's Health

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Abstract

For more than a decade, the adverse effects of the MMR vaccine have been discussed, due to the study that has raised fear among parents worldwide. Even today, some people including Malaysians do not believe in the MMR vaccine. This study aims to identify the perception of all Malaysians on the MMR vaccine toward children's health. In this study, a cross-sectional study has been used which includes questionnaires as its main data collection method. A total of 108 respondents participated in this research, whereby the respondents answered the questionnaires with Google Docs. Using SPSS software, a more extensive and detailed analysis was performed to determine the descriptive statistics for each survey item. background. As stated in the findings and conclusions, beliefs and income level had little bearing on how Malaysians perceived the MMR vaccine. However, educational background and the influence of the media are both major factors. Therefore, it can be deduced from the ANOVA that this model is suitable. The proposed hypothesis was also significant for educational background and the influence of mass media, but insignificant for beliefs and income level, according to the multiple regression analysis.

Keywords: *Measles-Mumps-Rubella Vaccine, Educational Background, Mass Media, Income Level, Beliefs.*

1.0 Introduction

According to Hussain et al. (2018), vaccinations are one of the many crucial preventive medicine activities utilised to shield the populace from illnesses and infections. According to Thahira (2020), the Measles, Mumps, and Rubella (MMR) vaccination, which was created in 1971, is one of the vaccines that are administered to a kid at the age of one. Every kid must receive both doses of the MMR vaccination, which comes in two doses. The first dose should be administered between the ages of 12 and 15 months and the second between the ages of 4 and 6 years (NHS, 2021). This vaccine aids in the production of antibodies that protect and prevent kids from contracting these MMR disorders (CDC, 2021). According to CDC data from 2021, the MMR vaccine has a 97% success rate. This can be seen by the large number of measles cases reported before to the introduction of the MMR vaccine. Before the development of the MMR vaccine, the number of MMR cases in the United States was approximately 4 million per year; however, once the MMR immunisation programme was implemented, the cases were reduced by 99 percent (CDC, 2021). Despite the MMR vaccine's effectiveness, some parents oppose having their child immunised because of personal or religious convictions that put their children and others in danger of contracting these diseases.

The MMR vaccine will cause major health risks like autism and inflammatory bowel illnesses, according to a 1998 study by Andrew Wakefield, which has worried parents and consequently decreased immunisation rates (WHO, 2020). However, other medical experts were unable to identify and establish a plausible connection between the MMR vaccine and autism; as a result, this report had to be retracted. According to a 2004 Institute of Medicine (IOM) report, there is no connection between the MMR vaccine and autism. Unfortunately, some parents in the UK continue to have reservations about the vaccine.

Measles cases have been on the rise in Malaysia from 195 cases in 2013 to 1,934 cases in 2019, and 22 deaths have been reported, of whom 19 victims were unvaccinated (Malaysian Pediatric Association, 2019). Additionally, the Health Ministry reports that the number of parents who refused to give their children the MMR vaccine increased from 918 instances in 2014 to 1,603 cases in 2016, which is seen in the rise in vaccine-preventable disease (VPD) cases (Malaysian Pediatric Association, 2019). However, due to the outstanding safety record of the MMR vaccination, it has been demonstrated that the benefits of receiving it far outweigh the dangers of these known side effects. It is crucial to look into the underlying reasons behind parents' refusal to have their children vaccinated. Therefore, the "Malaysian perception on MMR vaccination towards children's health" is the main emphasis of this study.

According to the Ministry of Health Malaysia's schedule, children between the ages of 12 and 15 months should receive the MMR vaccine. It is important to protect those vulnerable children as well as to prevent the spread of these deadly diseases. Due to this, Malaysia instituted mandated vaccination programmes in public schools for students under the age of 15. (Chronicle,2015). However, some parents continue to disregard the recommended vaccination regimen. According to Edwards (2001), some parents feel that receiving a separate immunisation rather than a combined one is safer and more beneficial. In addition, some parents worry that their children will experience negative side effects from the immunisation. Although the United States declared the measles, mumps, and rubella sickness extinct in 2000, there have been 981 confirmed cases there in 2019. (Samuels, 2019). In Malaysia, anti-vaccine activists refused to receive vaccinations and attempted to persuade others to do the same, which the WHO lists as one of the top 10 threats to world health in 2019 (WHO, 2019).

2.0 Literature Review

Vaccine phobia and myths concerning them are nothing new; in fact, they have been prevalent for a long time. According to Hussain et al. (2018), there has been a recent uptick in opposition to the MMR vaccine for a variety of causes including imagined anxietiesThere are more vaccine-hesitant parents in the US than ever before, and most of them express concerns about giving their kids the MMR vaccine (Gowda et al., 2013). Only one out of every four parents in the US is willing to follow the advised childhood immunisation schedule, according to a study by Gowda et al. (2013). The other parents are against it. Furthermore, according to Baxter (2014), there have been numerous vaccine disputes in the United Kingdom over the past two centuries, in which community opposition hampered the execution of programmes. According to a survey by Baxter (2014), most parents would welcome an honest dialogue with medical personnel. In a sense, challenging and debating medical professionals will help them become more receptive to the MMR vaccine.

Ramsay et al. (2002) examined trends in mothers' attitudes toward and use of the MMR vaccine from 1995 to 2001 in a different study. The cross-sectional survey of views on children immunisation, which is conducted in England twice a year by all the England health authorities, and the computerised Child Health System are the two sources used. Around 1000 mothers with children under three years old were questioned in 2001, and data from 26 English health agencies were supplied. Based on the results of the poll, it can be concluded that despite the negative press around the MMR vaccination, there was only an 8.6% decrease in its uptake (from 1995 and 2001), and that 92 percent of mothers would still vaccinate their children with it. Another significant finding from this study was that more socioeconomically advantaged parents appear to be more affected by the decline in MMR vaccine acceptability. This seemed to be at odds with studies done in the 1980s that claimed vaccine uptake rates were lower among more socially and economically disadvantaged areas (Peckham et al., 1989; Pearson et al., 1993; Ramsay et al., 2002). It demonstrates that parents have a variety of reasons for not vaccinating their children, including lack of education, media influence, low income, and religious convictions. The Malaysian context barely touches on these aspects.

2.1 Factors That Influence Parents in Deciding to Vaccinate Their Child

According to McClure et al. (2017), parents have been debating the necessity and safety of immunizations for the past ten years. Since parents' skepticism about vaccines has become so widespread, medical groups have been unable to persuade the public to get their children immunised, which has resulted in reduced vaccination rates in some regions. Donzelli et al. (2018) defined vaccine hesitancy as "the delay in acceptance or refusal of immunizations notwithstanding the presence of vaccination rules and services." There are many causes of vaccination reluctance, according to the Strategic Advisory Group of Experts on Immunization (SAGE).

2.2 Educational Background

The main factors influencing parents' vaccination decisions are their behaviours and understanding of immunisation. According to Al-Lela et al. (2014), a lack of parental education regarding the risks and limitations of vaccines frequently contributes to immunisation mistakes. Some parents believed that a slight illness was related to a vaccine contraindication, thus they did not allow their children to receive the most recent immunizations. Additionally, a survey

found that over a third of individuals believed they knew more about the causes of autism than medical professionals and scientists (Motta et al., 2018). It is possible to use the "Dunning-Kruger effect," which occurs in persons who believe their cognitive aptitude is far larger than it is (Cherry. K, 2019). The opposition to obligatory vaccination laws may be a contributing factor to this overconfidence. Additionally, some studies have shown that lack of vaccine information is another factor contributing to reluctance, with low awareness potentially influencing parents' choices (Willems. L, 2019). In a similar vein, research by Hilton (2005) found that mothers without the proper educational credentials at the "Advanced Level in the General Certificate of Education" or above are more likely to fail to provide their child with the full course of immunizations, which they hypothesised might explain why vaccine uptake is lower in underprivileged areas. According to Gowda et al. (2013), parents should receive vaccine information that is specific to their level of MMR vaccine hesitation. This is because parents with more knowledge are more likely than parents with less knowledge to acknowledge the facts regarding the safety of vaccines. Additionally, research reveals that it is crucial for parents to feel as though they are receiving information on both the drawbacks and benefits of vaccination the more negative their attitudes against vaccines are.

2.3 Influence of Mass Media

The dissemination of false information and misinformation on social media, according to Aquino et al., (2017), Dube, Vivion & MacDonald (2015), Jolley & Douglas (2014), and Smith & Marshall (2010), is the origin of vaccine reluctance. The MMR vaccine worry is also one of the biggest health concerns in the United Kingdom (Guillaume and Bath, 2008). The safety of MMR has been called into question by the media as a result of previous publications. Numerous studies have emphasised the part played by the media in stoking doubts about the safety of the MMR vaccine. Pareek and Pattinson (2000), for instance, claimed that most parents learned about the risk of the MMR vaccine via the media. Even Evans et al. (2001) noted that the mass media played a significant role in influencing parents who were dubious about the MMR vaccine. Even well-known figures in the entertainment sector have expressed their opinions on vaccination. Jenny McCarthy, an actress who has gained notoriety for spreading mistrust among parents by posing as "autism experts," is one of these voices (Shapiro, 2019). Oprah Winfrey, a well-known television talk show host, has contributed significantly to this misinformation by endorsing the anti-vaccination movement (Belluz, 2018). Most parents chose not to vaccinate their children in part due to this conduct. Some people place a lot of value on an influencer or celebrity's point of view, and some parents would wish to adopt this viewpoint wholeheartedly. Consequently, Hussain et al. (2018) claim that this has led to a startling decline in vaccination rates in various Western nations.

In addition, a recent study by Donzelli et al. (2018) indicated that parents who believe vaccines are unsafe tend to choose websites and webpages that support their claims, making it more difficult for academics and governmental organisations to persuade them differently. In addition, Baxter (2014) noted that parents have been significantly impacted by the speed at which information is disseminated through radio, television, and newspapers. In fact, it only took a day for the MMR dispute to be covered by newspapers and television, and it dominated UK newscasts for several days, demonstrating how quickly the knowledge was disseminated. Any upcoming vaccine issue is likely to start quickly and quickly spread thanks in large part to social media. The worst-case scenarios are frequently highlighted by the media and advocacy groups, according to Viscusi (2007), which tends to amplify certain types of risk assessment biases. One of the first media outlets to spread fears about the MMR vaccine and misinform the public was the British press (Fitzpatrick, 2005).

2.4 Beliefs

Many people have disbelieved in vaccinations over the years; these individuals are referred to as anti-vaxxers. According to Hussain et al. (2018), more people are turning anti-vax as time goes on. Some of these people think that MMR vaccinations will be detrimental to children's health rather than beneficial. Additionally, there are campaigns against vaccination that arise for private causes like religious or secular beliefs. Vaccines, according to Reverend Edmund Massey (1722), might be seen as an effort to combat God's penalties of man for his sins. Similar religious opponents claimed that vaccinations were the devil's creation in the "New World" (Hussain et al., 2018). This demonstrates the notion held by certain individuals that vaccination of their children is prohibited by their religion. Additionally, a study revealed that animal gelatins used in the manufacture of the MMR vaccination as well as the use of aborted human fetal tissue in the rubella component of the vaccine were forbidden owing to religious beliefs (Hussain et al., 2018). In a similar vein, a study by Hilton (2005) indicated that 17 parents chose not to vaccinate owing to religious convictions, with the notion that homeopathy is superior to vaccines being the most common reason for refusal. This claim is corroborated by prior research by Simpson et al. (1995), who acknowledged that some parents chose not to vaccinate their children due to personal religious convictions or because they preferred to utilise homeopathy. In addition, Rossen et al. (2016) pointed out that parents who oppose children's vaccination are more likely to support individual rights and to object to the idea of placing pollutants in human bodies.

2.5 Income Level

There was minimal discussion on whether income level could influence parents' decisions to vaccinate or not to vaccinate their children at the time this research was being planned and conducted. The MMR vaccine is the only one offered by the United Kingdom National Health Service (NHS) where there is a notable negative impact of poverty on uptake, according to Dan et al. (2008). In truth, the NHS offers the MMR vaccine free of charge but does not offer individual doses of the Measles, Mumps, and Rubella vaccines. A single dosage of any of these three vaccines would therefore be desired by parents who do not believe in the MMR vaccine but doing so would be expensive. As a result, parents with limited means may not be able to afford the single dose. A single dose costs between £80 and £100, so getting all three shots for each condition will cost more than £200. (Dan et al. 2008). This shows that income level may play a significant role. In addition, the Millennium Cohort Survey (MCS), which includes children from the United Kingdom, indicates that the income level effect is consistent with parents choosing to purchase individual immunizations rather than the free MMR vaccine (Portnoy et al., 2020). Additionally, the estimates for the other vaccines, which have either zero or positive income effects, significantly contradict the predictions for the MMR vaccine's negative income effect (Arnaud et al., 2008). The adverse income effect occurs when more affluent parents are more likely to forego the MMR vaccination and opt for a single shot. Additionally, when there is a choice between receiving single vaccinations or allowing the child to go unvaccinated in exchange for declining the MMR vaccine, a significant income effect is also visible (Demicheli et al., 2005).

3.0 Methodology

Non-probability sampling, or volunteer sampling, was employed in this study because it is the most practicable method. The sample size for this study will be decided using the formula provided by Tabacknick and Fidell (2001). As a result, the sample size for this study will be at least 82 respondents, which is a suitable number, but it could be not sufficient from another perspective.

Primary data for this study was gathered by the distribution of questionnaires to study participants, who were asked to respond to the questions specifically specified in the questionnaire. For the respondents to be fully informed about the topic covered in the questionnaire, the survey's purpose was stated at the outset. There are 31 questions in total across the three sections of the study's questionnaire. Section A contains demographic information about the respondents, whereas Section B measures the dependent variable (Malaysian perception of the MMR vaccination) and independent variables (Educational background, Influence of mass media, Beliefs, and Income Level). Two open-ended questions in section C were targeted at responders who disagree with the MMR vaccination concept. In this survey, the Likert scale was primarily employed (1 = strongly disagree to 5 = strongly agree).

The questionnaire has been validated by the field expert before being given out to the respondents. The study's feedback was gathered using a Google Form, and data was gathered using an online platform, where the respondents were chosen based on the criteria. Nearly 200 surveys were given out to Malaysians. The procedure of gathering data took about 3 weeks, and 108 replies were obtained for this study.

For the analytic section of this study, Google Forms was used to distribute the questionnaire. As a result, descriptive analysis was used because it aids in the researcher's understanding of the data. The use of descriptive analysis can reveal the variables' variability and tendency. Because most of the questionnaire's questions employ Likert scales, a reliability test was done to make sure the information was internally consistent. A normality test, which is vital in evaluating if the data are regularly distributed, is next conducted. The Pearson correlation analysis is the next test that was run to assess the data. Multiple regression analysis was the last step, and it was used to better clarify the link between the dependent variable and the independent factors. With the help of this analysis, it is possible to determine if the four independent variables that were utilised in this study would influence or influence the dependent variable, namely Malaysians' attitudes regarding the MMR vaccine and their impact on children's health.

4.0 Results and Discussion

Starting with a demographic analysis of the respondents which reveals that 65.7 percent of the sample respondents were female and 34.3 percent were male was the most typical method for examining data. The age range of the respondents also varies, with 42.6% of them being between the ages of 18 and 23, 32.4% being beyond the age of 42, 12.0% between the ages of 24-29, 8.3% between the ages of 30-35, and 4.6 percent between the ages of 36 and 41. Furthermore, only one (1) of the respondents 0.9% is divorced, whereas 46.3 percent of respondents are married, and 52.8 percent of respondents are single. Additionally, 79.6% of

respondents are from Peninsular Malaysia, while the remaining 20.4% are from East Malaysia. Furthermore, 68.5 percent of respondents have a degree, followed by 14.5 percent of respondents with postgraduate or professional degrees, 12 percent of respondents with pre-university degrees, and 4.6 percent of respondents with secondary education. The fact that 48.1% of respondents have children and 51.9% do not is particularly significant. Only 13.9% of respondents out of 48.1% have children between the ages of 1 and 6 though.

In order to determine the Cronbach's Alpha value, a reliability test in SPSS was carried out using the collected data. A Cronbach's Alpha value that is closer to 1 indicates that the items are more dependable, according to Zikmund et al. (2013).

Table 1 - Reliability Statistics

VARIABLES OF THE STUDY	CRONBACH'S ALPHA	N OF ITEMS
Perception Towards MMR Vaccine	0.675	2
Educational Background	0.770	4
Influence of Mass Media	0.756	4
Beliefs	0.337	3
Income Level	0.485	2

The reliability results of this study are shown in Table 1 above. It reveals that only three of the study's variables exceeded Cronbach's Alpha's value of 0.6, while the other two variables did not. As a result, only the perception of the MMR vaccine, educational background, and media influence can be employed in this research and are appropriate for further investigation. However, even though beliefs and income level are unreliable for this study, the researcher still plans to test the hypothesis for the two aforementioned factors. A lot of statistical tests, like multiple linear regression, require the normalcy test (Gupta et al.,2019). There are several ways to do the normalcy test, and skewness and kurtosis were once a common technique. The normal distribution's lack of symmetry can be explained by the fact that the skewness is regarded as a measure of symmetry. According to Kallner (2018), when a value is less than -1 or greater than 1, the data will be highly skewed, moderately skewed when a value is between -1 and -0.5 or 0.5 and 1, and symmetric when a value is between -0.5 and 0.5. Kurtosis is a measurement of the distribution peak in addition. According to Kallner (2018), a conventional normal distribution has a kurtosis of 3. An increase in kurtosis values above 3 can be represented as a high peak, whilst a drop in kurtosis values can be visualised as a broadening of the peak. Table 2 displays the skewness and kurtosis values for each variable.

Table 2 - Normality Statistics

	N Statistics	Minimum Statistics	Maximum Statistics	Mean Statistics	Std Deviation Statistics	Skewness		Kurtosis	
						Statistics	Std Error	Statistics	Std Error
Beliefs	108	5.00	25.00	19.7037	1.92504	.023	.233	-.382	.461
Income Level	108	2.00	6.00	3.5370	1.27833	.408	.233	-.769	.461
Educational Background	108	9.00	20.00	16.1852	2.99890	-.303	.233	-.757	.461
Influence of Mass media	108	4.00	18.00	10.4444	3.50523	.051	.233	-.805	.461

Perception	1081	2.00	6.00	2.6481	1.08787	1.497	.233	1.354	.461

The skewness and kurtosis values of each variable have been noted in the Table 2. The results show that the dependent variable's skewness, which was 1.497, is skewed to the right. It is implied that the data is normally distributed by looking at the skewness and kurtosis values for all the independent variables, which range between -0.5 and 0.5.4.2 Person Correlation Analysis

Pearson Correlation analysis was used to identify the possible association between variables as shown in Table 3.

Table 3 - Pearson Correlation Results

		Educational Background	Beliefs	Income Level	Influence of Mass Media	Perception
Educational Background	Pearson Correlation	1	.015	.467**	.980**	.193*
	Sig. (2-tailed)		.881	.000	.000	.046
Beliefs	Pearson Correlation	.015	1	.103	-.008	-.099
	Sig. (2-tailed)	.881		.288	.934	.306
Income Level	Pearson Correlation	.467**	.103	1	.482**	.265**
	Sig. (2-tailed)	.000	.288		.000	.006
Influence of Mass Media	Pearson Correlation	.980**	-.008	.482**	1	.201*
	Sig. (2-tailed)	.000	.934	.000		.037
Perception	Pearson Correlation	.193*	-.099	.265**	.201*	1
	Sig. (2-tailed)	.046	.306	.006	.037	

*** Correlation is significant at the 0.01 level (2-tailed).*

** Correlation is significant at the 0.05 level (2-tailed)*

With a Person correlation value of 0.265, income level exhibits the greatest link with attitudes about the MMR vaccine of all the independent factors. The link between perception and income level is weakly linear, as indicated by the coefficient value of 0.265. The correlation's p-value is 0.006, which is significant at the 1 percent level. The next variable, the influence of the media, has a Pearson correlation coefficient of 0.201, which suggests a small but positive association between the influence of the media and attitudes regarding the MMR vaccine. The correlation's p-value is 0.037, which indicates that it is significant at a threshold of five percent. Education background and attitudes about the MMR vaccine have a positive but sluggish link, according to the Pearson correlation coefficient of 0.193. The correlation's p-value of 0.046 indicates that it is still significant at the 0.05 level, despite this. Beliefs is the final independent variable, and its sig value is 0.306, meaning that it is not significant at the 0.05 level. As a result, there is no correlation between beliefs and perceptions of the MMR vaccine.

Multiple regression analysis is widely used to investigate the relationship between a dependent variable and a number of independent variables. The independent variables—educational

background, media influence, beliefs, and economic status—were also entered into SPSS along with the dependent variable, which was the perception of the MMR vaccine. Table 4 displays the outcomes of the multiple regression.

The R square for this model, which is 0.250 as given in Table 4, suggests that multiple regression models that include factors like educational background, media influence, income level, and beliefs will account for 25% of changes in the dependent variable. Since the perception of the MMR vaccine is the dependent variable, it is crucial to continue this research with an F-test and t-test to determine which independent variables are highly related to or unrelated to the dependent variable.

Table 4 - Model Summary of Multiple Regression

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.500	.250	.221	.96021

The results of the F-test are displayed using Table 5. The study's F test statistics are 8.586, according to the tests and analyses that were done for it. Additionally, the p-value has a sig value of 0.000 (Sig < 0.01), indicating that the model is suitable.

Table 5 - ANOVA Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31.664	4	7.916	8.586	.000
	Residual	94.966	103	.922		
	Total	126.630	107			

The coefficient values of the multiple regression model are shown in Table 6 below, which will aid in determining the importance of the independent variables. It shows that educational background and influence of mass media are significant at 1% level.

Table 6 - Coefficients of Multiple Regression

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(constant)	5.632	1.521		3.702	.000		
	Income Level	.128	.077	.150	1.657	.101	.885	1.130
	Educational Background	-.420	.102	-1.159	-4.110	.000	.092	10.912
	Influence of Mass Media	.347	.114	.847	3.030	.003	.093	10.736
	Belief	-.160	.103	-.135	-1.556	.123	.962	1.040

5.0 Conclusion

The outcome indicated that the educational background's p-value is 0.000, which is less than 0.05. This suggests that Malaysians' perceptions of the MMR vaccine are greatly influenced by their educational status. This finding is consistent with earlier studies by Hilton, Motta,

Williams, Al-Lela, et al. (2014), and Motta, et al. (2018). This is further demonstrated by the fact that most Malaysians who responded to the poll and chose not to receive the MMR vaccine stated that the lack of exposure to or knowledge about the MMR vaccine was the primary factor in their decision. The importance of the MMR vaccine and the efficiency of the vaccine were both highlighted by three respondents as being doubtful. Consequently, this backs up Williams' research (2019). Parents typically admit the safety of vaccines more readily than they would without any understanding after receiving more exposure to and coverage of the MMR vaccine. According to the above findings, there is a positive correlation between educational background and perceptions of the MMR vaccine, and most respondents agreed with the survey's assertion that educational background is a significant factor influencing Malaysians' perceptions of the MMR vaccine. The claim that the MMR vaccine offers children more advantages than disadvantages demonstrates how much parents' educational backgrounds influence their decision to vaccinate their children. Parents with poor levels of education are less likely to be knowledgeable about the advantages of vaccination, which increases the likelihood that they will choose not to vaccinate their children.

The findings of this study demonstrated a significant favourable association between Malaysian perceptions of the MMR vaccine and the influence of the media. The influence of mass media is an independent variable with a p-value of 0.003, which is less than 0.01. This suggests that Malaysian perceptions of the MMR vaccine are highly influenced by the media. It is in line with earlier studies by Aquino et al. (2017), Dube, Vivion & MacDonald (2015), Jolley and Douglas (2014), and Smith and Marshall (2010), which noted that social media was the origin of vaccine reluctance. One of the responders said that he was persuaded by one of the Malaysian celebrities who are known to be against the MMR vaccine. As a result, it demonstrates that Malaysians may be swayed by comments made about the MMR vaccine on social media, which will change how they see the shot. Similar findings have been made in earlier studies by Pareek and Pattinson (2000) and Evans et al. (2001), which found that most parents learn about the MMR vaccine from the media and are likely dubious of the shot as a result of media-fueled misinformation. Additionally, given that a significant portion of Malaysians—30% of the respondents to our study are still unaware of the MMR vaccine, they might turn to the media for more information. However, the media frequently highlights the negative effects of the MMR vaccine, which will harm Malaysians' opinion of the vaccine (Viscusi,2007). In conclusion, the findings above demonstrate that mass media influence is acknowledged as a key factor in shaping Malaysians' perceptions of the MMR vaccine.

The findings of this study demonstrated that beliefs do not significantly influence Malaysian perceptions of the MMR vaccine. The independent variable, beliefs, has a p-value of 0.123, which is higher than 0.05. This suggests that Malaysians' perceptions of the MMR vaccine are only marginally influenced by beliefs. According to earlier studies by Reverend Edmund Massey (1722), Hilton (2005), and Rossen et al. (2016), most people choose not to vaccinate their children with the MMR vaccine because of their religious beliefs. The findings of this study conflict with those studies' findings. In conclusion, this study determined that beliefs were not relevant, which is supported by the findings shown above.

The findings of this study demonstrated that income level does not significantly influence Malaysian perceptions of the MMR vaccine. The independent variable's income level has a p-value of 0.101, which is higher than 0.05. This suggests that the opinion of the MMR vaccine in Malaysia is not greatly influenced by financial level. According to the study's findings, Malaysians are aware that the MMR vaccine is provided free of charge as part of the country's

national immunisation programs; therefore, the financial level has no bearing on how the MMR vaccine is seen by Malaysians.
There are some potential limitations such as low sample size, it might not be large enough to represent the Malaysian population as a whole. The low-reliability score for the variable Brief and Income level might have affected the result.

In conclusion, the findings above demonstrate that socioeconomic level has little bearing on Malaysians' opinions about the MMR vaccine.

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