Predictors Affecting the Intention to Receive the COVID-19 Vaccine among Youths in Alor Setar, Kedah, Malaysia

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Abstract: The pandemic of Covid-19 has brought devastating impact on the economic, social, politics and well-being to the people worldwide. Thus, to curb with the contagion of Covid-19 virus, vaccination is vital to achieve herd immunity as well as to return society to a normal status quo. This research aims to examine the factors that affect the intention to receive the Covid-19 vaccine among youth population in Alor Setar, Kedah, Malaysia. Theory of Planned Behaviour (TPB) as the fundamental theoretical framework was used to investigate the behavioural determinants associated with intention to get the Covid-19 vaccine. This study also investigated the main factors (attitude, perceived norms, level of education and mass media) on the intention to get vaccinated against Covid-19. A quantitative method was used in this study which relied on the primary data collected through online questionnaires from 243 of youths living in Alor Setar using purposive sampling technique. This study also used descriptive and inferential statistics for data analysis purposes. Findings of this study indicate that majority of youth population in Alor Setar had a high level of Covid-19 vaccination intention. In addition, there were significant correlations between attitude, perceived norms and mass media with Covid-19 vaccination intention. However, the level of education did not correlate with the intention to receive the Covid-19 vaccine among the youth population. The results of this study recommend several strategies in enhancing the Covid-19 vaccination intention through the interventions by government or authorities, diffusion on social media and promotional campaigns on social media platforms.

Keywords: Attitude, Perceived Norms, Intention, Covid-19 Vaccine

Introduction

Vaccination has been one of the pivotal elements and deemed important especially in the situation to curb with pandemic of Covid-19 virus. In response to the resurgent number of Covid-19 cases, it has resulted to the dire need for an effective measure of vaccination as to halt the contagious disease and to abate the spread of virus (Wong et al., 2020). According to Kecojevic et al., (2021) vaccines were essential in combating the Covid-19 epidemic. Immunisation was also proven to be an effective way to lessen the overall severity of the disease and prevent from the widespread of the SARS-CoV-2 virus, only if the vaccination uptake was high to develop herd immunity (Kuter et al., 2021). However, acceptance for the Covid-19 vaccine has been found to be less than ideal, as revealed in a study found that, during early in the pandemic, only 26 percent of people in seven European nations, including the United Kingdom were hesitant to receive the Covid-19 vaccine when it became available (Paul et al., 2021).

Low rates of planned vaccines uptake may risk immunisation attempts to curb rising infections and death rates (Latkin et al., 2021). In fact, vaccination was considered the greatest approach and effective against the spread of contagious diseases according to the public health perspectives and it guaranteed the transmissions of the virus will reduce, and even if the disease was spread after being

vaccinated, the fatality rate and number of individuals afflicted were as low as feasible (Kennedy, 2011); (Burry & Walsh, 2020). According to Gates et al, (2021), vaccination intention can be defined as the willingness to get vaccinated, as well as vaccine acceptability which it includes the desirability, positive perspective toward the provided vaccine, and vaccination demand. A study has indicated that only a small percentage of people worldwide believed that vaccinations were unsafe as reported, 20 percent of the public in Belgium, France, Togo, Gabon, Austria, Russia, and Switzerland, were sceptical about the vaccine safety and efficacy (Giannouchos & Steletou, 2021).

The Malaysian's government efforts in achieving herd immunity were still ineffective in combating this outbreak since there were still many issues of vaccine hesitant and anti-vaccine sentiments in Malaysia. Many recent cases were reported more than ten thousand absenteeism for the vaccination appointments that happened in few states such as Kelantan, Perak, Negeri Sembilan, Melaka, Pahang, Kedah and Perlis (Kosmo Online, May 27, 2021). As reported by Kosmo Online, (May 27, 2021), absenteeism cases for vaccination that reported happened in few states mentioned above were Negeri Sembilan with 6233 cases, Perak with approximately 9000 cases, Melaka with 3612 cases, followed by Perlis with 3000 cases, and Pahang with the higher total absenteeism of 10 000 cases that were reported as same as Kelantan and Kedah.

Also, higher cases of absenteeism for Covid-19 vaccine appointments were reported in Alor Setar, Kedah whereby the State Health Director, Dr Mohd Fikri Ujang stated that a total number of 10,827 individuals were no-shows for their Covid-19 injection appointments (Malay Mail Online, May 26, 2021). The irresponsible attitude of failures to show up for vaccination undermine the National Immunization Program (NIP) objective as it delays the process to achieve the herd immunity in Malaysia said Dr Yahya Mat Arip, a virologist from Universiti Sains Malaysia (The Star, May 26, 2021). Considering the forementioned issues, this study was further conducted to examine the predictors that influence the intention to receive the Covid-19 vaccine among youths in Alor Setar, Kedah.

Literature Review

Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB) is a behavioural dispositions hypothesis that includes social attitude and personality characteristic which is useful in attempting to understand and explain human behaviour (Ajzen, 1991). There were three conceptually relative concepts of intentions as indicated by the TPB.

The first independent factor of intention is attitude. Attitude can be referred to as the level that relates to the extent to which the individual regularly views or appraises the action in question in a favour or unfavourable manner. Next, in the social aspect, the independent factor of TPB was subjective norm. Subjective norm refers to the perceived social pressure to do or refrain from performing the action. The level of perceived behavioural control is the third predictor of intention as referred to the perception with the ease or difficulty of doing the desired action (Ajzen, 1991).

The TPB model predicts vaccination intention based on a range of criteria including subjective norms for vaccination uptake actions, vaccine attitude, perceived norms and behavioural control perceptions (Shmueli, 2020). TPB was a theoretical model used to predict person's behavioural intention for vaccination. To add, according to the Theory of Planned Behaviour (TPB), self-efficacy and subjective norms are the most influential predictors to the intention to receive Covid-19 vaccine (Shmueli, 2020). This present study used the conceptual framework of Theory of Planned Behaviour (TPB) namely attitude, perceived norms, perceived behaviour control which were mass media and the socio-demographic, which consists of level of education, in predicting the significant predictor that affects the intention to receive the Covid-19 vaccine among youths in Alor Setar, Kedah. Also, the Covid-19 vaccination intention was the dependent variable of this study which was substantially influenced by the behaviour and attitudes of the youth to receive the Covid-19 vaccines. The theoretical framework was adapted from previous studies by Mir et al., (2021), Cordina et al., (2021); Shmueli (2021); Ruiz & Bell (2021).

Intention to receive the Covid-19 vaccine

Empirical research conducted by Mo et al., (2021) found that the intention to receive the Covid-19 vaccines among students in China were high, amounting to 78.9 percent. Moreover, a study by Chu and Liu (2021) which explored the Covid-19 vaccination intentions among American reported that most of the respondents were highly intent to get vaccinated against Covid-19. Furthermore, a cross-sectional study conducted in Malta reported high vaccination intentions where over half of the respondents were willingly to get vaccinated against Covid-19 (Cordina et al., 2021). On top of that, a descriptive analysis study consists of 735 students who responded to the question about their intention to vaccinate revealed that 633 of the students or by 86.1 percent of the students said they were intended to have a Covid-19 vaccines (Barello et al, 2020). A recent study carried out by Sallam (2021) on the 33 different countries reported that the highest vaccine acceptance rates were above 90 percent among the respondents. To add, four countries were found to have the highest vaccine acceptance rate which was China at 91.3 percent, Malaysia with 94.3 percent, Ecuador with 97 percent, and Indonesia with 93.3 percent. Thus, the hypothesis of this study was developed.

H1: The level of intention to receive the Covid-19 vaccine is high.

Attitude for Covid-19 vaccination

Attitude can be referred to as a person's positive or negative judgement or an appraisal of an action and it emerges naturally from people's ideas or views about the elements of the attitude (Ajzen, 1991). Several studies indicate that there was positive relationship between attitude and the Covid-19 vaccination intentions. For example, Thaker (2021) reported that, 74 percent of the respondents intended to get the Covid-19 vaccine when it was made available, while 26 percent answered they did not plan to receive the Covid-19 vaccine. This is also supported by another research which reported the lower level of intention towards the Covid-19 vaccine in Malaysia due to "wait and see" attitudes that impede the goals on achieving herd immunization in Malaysia. Hence, there were positive relationship between attitude and Covid-19 Vaccination Intention. Thus, the following hypothesis was developed.

H2: There is a significant correlation between Attitude and Covid-19 vaccination intention.

Perceived Norms

According to Ajzen (1991) Perceived Norms can be defined as the perceived social pressure whether to perform or not to act on the behaviour or attitudes. To add, it is measured through the beliefs. This is also called as 'normative beliefs' which constructs the factor for subjective norms and determinants that influences individual's perceptions towards a particular behaviour or attitude. Research done by Graupensperger et al., (2021) provides evidence of social norms regarding the peers' behaviours and attitudes which strongly influenced the intentions of an individual to getting a Covid-19 vaccine. Recent study by Zhang et al (2021) also found that perceived norms have a substantial impact on vaccination intentions in the study. This statement was also nailed with another finding by Chu and Liu (2021) which found a positive correlation between perceived norms and the intention to receive the novel vaccines. Subsequently, the next hypothesis was established.

H3: There is a significant correlation between Perceived Norms and Covid-19 vaccination intention.

Mass Media

According to Hirst (2018) mass media is the form of technologies used as a channel to disseminate messages widely and to communicate with a larger group of individuals in order to persuade or influence in some way. Based on the study by Luo et al., (2021) frequent interactive of mass media proved to have both positive and negative sides on the behavioural intention of an individual to get vaccinated against Covid-19. It implied that mass media contributed a significant influence on the vaccination uptake. To add, an exposure to positive information about Covid-19 vaccination through

mass media was substantially linked with positive vaccination behaviour that could lead to a greater intention to get the Covid-19 vaccines (Zhang et al., 2021). This statement can be supported with research findings by Mo et al., (2021) proving that mass media had positive correlations with the intentions to get vaccinated against the Covid-19. Hence, the following hypothesis was developed.

H4: There is a significant correlation between Mass Media and Covid-19 vaccination intention.

Level of Education

Several findings have indicated that there was a strong positive correlation between level of education and the Covid-19 vaccination intention. Williams et al., (2021) found that those with higher level of education were more likely to receive the vaccine. This study also concurs with another finding by Chu & Liu (2021) that reported individuals above the age of 65, as well as those with a greater level of education and income, were more likely to be vaccinated against Covid-19. Moreover, Robertson et al., (2021) also discovered that level of education contributed a significance relationship towards the Covid-19 vaccination intention. However, another study found that level of education had no effect on the willingness to take the vaccine (Cordina et al., 2021). Thus, the following hypothesis was drawn.

H5: There is a significant correlation between Level of Education and Covid-19 vaccination intention.

In this current context, the study employed the framework used in previous studies of Mir et al. (2021), Cordina et al. (2021), Shmueli (2021), Ruiz & Bell (2021) and Wada and Smith (2013) as the basis of the correlations which congregate amongst the variables. The attitudes, perceived norms, mass media and level of education factors are the determinants that can influence the youths' intention to have Covid-19 vaccination. **Fig. 1** shows the conceptual framework of the study.

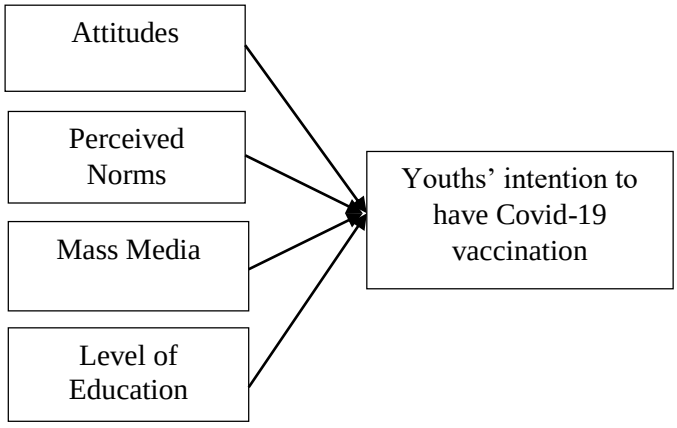

Fig. 1 Conceptual Framework of the Study

Methodology

Research Design

This is a quantitative with a cross sectional study. This study aimed to investigate the main predictors (attitude, perceived norms, level of education and mass media) on the intention to get vaccinated against Covid-19. A self-administered and online questionnaire as the survey instrument was performed and distributed among 243 respondents via the purposive sampling method. According to Roscoe (1975) a sample size of between 30 and 500 is appropriate. This study adapted and developed a set of

questionnaires based on previous studies by Mir et al. (2021), Cordina et al. (2021), Shmueli (2021), Ruiz & Bell (2021), and Wada and Smith (2013) for the data collection purposes. The questionnaires consist of five sections; Section A: Sociodemographic (Level of Education), Section B: Covid-19 Vaccination Intention, Section C: Attitudes, Section D: Perceived Norms, Section E: Mass Media. Also, this study used a 5-point Likert-Scale; (5-Strongly Agree, 4-Agree, 3-Neutral, 2-Disagree, 1-Strongly Disagree) for Section B, C, D and E. Those gathered data were then analysed using descriptive and inferential statistics. Before conducting data analysis, a preliminary testing was conducted to ensure the reliability and normality of the questionnaire for the actual study. According to Hair et al., (2010) the value of Cronbach's Alpha greater than 0.6 is necessary to determine whether the data were significant, accurate, and consistent. To test the normality of the data, Hair et al., (1998) stated that normality can be assessed to some extent by obtaining the values of skewness and kurtosis. Kline (2005) stated that the skewness value should fall within the range of -3 to +3, and the kurtosis value should fall within the range of -10 to +10 to indicate the normal distributions.

Sample Profile

Table 1 outlines the summary of demographic profile of respondents participated in this research. The age group of youths between 18 to 23 years old were the dominant age in the study where the percentage were at 65% compared to youths aged between 24 to 29 years old with response rate of 35%. The dominant gender of respondents who participated in this study were female with response rate of 55.1%, meanwhile male was at 44.9%. Majority of the respondents were Malays with 67.9% compared with Chinese at 12.3%, Indians, estimated at 13.6% and other races at 6.2%. The highest response rate for the level of education was tertiary education level with 91.4% compared to the secondary school with 8.6%. Next, in terms of the marital status of the respondents, the majority were single (77%) and the rest were married (23%). Most of the respondents were living in rural areas (51.9%) and the rest resided in urban areas (8.1%). In terms of employment status, 58.4% of the respondents were students, 14% were employed and 34% of the respondents were unemployed. As for vaccination history, the analysis shows that most of the respondents had been vaccinated (98.4%) while the remaining 1.6% had not been vaccinated yet.

Table 1. Summary of Demographic Profile of Respondents (n=243)

Respondents' Profile	Frequency	Percentage
Age		
18 – 23 years old	158	65.0
24 – 29 years old	85	35.0
Gender		
Male	109	44.9
Female	134	55.1
Race		
Malay	165	67.9
Chinese	30	12.3
Indian	33	13.6
Others	15	6.2
Level of Education		
Secondary School	21	8.6
Tertiary Education Level	222	91.4
Marital Status		
Single	187	77.0
Married	56	23.0
Residential Area		
Rural	126	51.9
Urban	117	48.1
	67	27.6

Employment Status	34	14.0
Employed	142	58.4
Unemployed		
Student		
Vaccination History		
Yes	239	98.4
No	4	1.6

Goodness of Measures

As shown in Table 2, the result indicates that the data were reliable and appropriate. Sekaran and Bougie (2010) stated that the reliability coefficient that is less than 0.6 is considered poor, 0.7 in range is acceptable and over 0.8 or nearer to 1 is categorised as good.

Table 2. Result of Reliability Analysis

Variables	No. of items	No. of items deleted	Cronbach's Alpha Value	Decision
Dependent Variable:				
Vaccination Intention	4	-	0.857	Reliable
Independent Variables:				
Attitude	6	-	0.837	Reliable
Perceived Norms	5	-	0.862	Reliable
Mass Media	3	-	0.893	Reliable

To determine the normality of the data, Hair et al., (1998) stated that normality can be assessed to some extent by obtaining the values of skewness and kurtosis. Based on the results, it shows that the values of skewness and kurtosis were within the stipulated range.

Table 3. Result of Normality Analysis

Variables	Skewness	Kurtosis	Decision
Dependent Variable:			
Covid-19 Vaccination Intention	-1.005	0.181	Normal
Independent Variables:			
Attitude	-0.510	-0.356	Normal
Perceived Norms	-0.527	-0.327	Normal
Mass Media	-0.815	0.189	Normal

Results

Table 4 demonstrates the level of Covid-19 vaccination intention among youths in Alor Setar, Kedah. According to Sekaran and Bougie (2013), the average value of mean is 3 to 4, above 4 is categorised as high and 1 to 3 in range is considered as low. Based on the reported result, it can be implied that majority of the youths living in Alor Setar had a high level of Covid-19 vaccination intention (M= 4.6234, SD= 1.8750). Thus, H_1 was supported.

Table 4. Level of Covid-19 Vaccination Intention among Youth in Alor Setar, Kedah

Variables	Mean	Standard Deviation	Decision
Vaccination Intention	4.6234	1.8750	Supported

Cohen (1988) suggested the range of R-value from 0.10 to 0.29 is categorised as low, R-values that in range 0.30 to 0.49 is moderate and the high R=value is 0.50 to 1.0. Table 5 presents the result from Pearson Correlation analysis between the study variables. As illustrated, there were significant correlation between attitude, perceived norms, and mass media with Covid-19 vaccination intention ($r=0.580$, $p<0.05$; $r=0.591$, $p<0.05$; $r=0.444$, $p<0.05$ respectively). However, level of education was not correlated significantly with Covid-19 vaccination intention ($r=0.444$, $p>0.05$). Hence, H_2, H_3, and H_4 were supported meanwhile H_5 was not supported.

Table 5. Pearson Correlation analysis between the study variables

Variables	R	p-value	Decision
Attitude	0.580	0.000 ($p<0.05$)	Supported
Perceived Norms	0.591	0.000 ($p<0.05$)	Supported
Mass Media	0.444	0.000 ($p<0.05$)	Supported
Level of Education	-0.060	0.354 ($p>0.05$)	Not supported

Table 6 indicates multiple regression analysis result. Based on the result, it depicts that those independent variables explained by 64.1 percent of the variance in Covid-19 vaccination intention which was highly significant. The value of Attitude ($\beta= 0.208$, $p= 0.000$); Perceived Norms ($\beta= 0.236$, $p=0.000$); Mass Media ($\beta= 0.066$, $p=0.238$) and Level of Education ($\beta= -0.182$, $p= 0.587$). Therefore, it can be concluded that perceived norms were the most significant predictor that affect the Covid-19 vaccination intention among youths in Alor Setar, Kedah.

Table 6. Results of the Multiple Regression analysis

Variables	Unstandardized Beta	Standard Beta	T-value	p-value	Decision
Attitude	0.208	0.309	4.340	0.000	Significant
Perceived Norms	**0.236**	**0.332**	**4.549**	**0.000**	**Significant**
Mass Media	0.066	0.076	1.184	0.238	Not significant
Level of Education	-0.182	-0.027	-0.544	0.587	Not significant
R^2	0.641				
F-Value	41.466				
P-Value	0.000				

Discussion

Based on the findings, it represents that majority of the youth population in Alor Setar had a high level of Covid-19 vaccination intention. The result of findings was in line with a study done by Sallam (2021) which demonstrates that the population in China, Malaysia, Ecuador, and Indonesia have the highest vaccine acceptance rates since the study revealed that it was related to greater trust in vaccine safety and effectiveness.

The predictor variables that were found to have a statistically significant effect ($p < 0.05$) on the intention to receive Covid-19 vaccine were attitude, perceived norms and mass media. Based on the findings, it was discovered that attitude had a significant correlation between Covid-19 vaccination intention among youth population in Alor Setar, Kedah. This finding was supported by Sherman et al. (2021) which indicates that there was significant relationship between attitude and Covid-19 vaccination intention as it was influenced by few characteristics related to Covid-19 vaccine. Based on the result of this study, it was found that there was a significant correlation between perceived norms and Covid-19 vaccination intention among youths in Alor Setar, Kedah. This finding was endorsed by past studies done by Latkin et al., (2020); Zhang et al., (2021) found that perceived norms have a substantial impact on the Covid-19 vaccination intention which was associated with interpersonal-level characteristics. Moreover, mass media was emerged to be positively associated with Covid-19 vaccination intention. The result of the findings obtained by (Zhang et al., 2021) was aligned with this study since it indicated that the exposure about Covid-19 vaccination information on various social media platforms contributed a significant relationship on the vaccination intentions due to intensive usage on mass media among the respondents.

Notwithstanding, this study also revealed that there was no correlation between level of education and Covid-19 vaccination intention but those with tertiary level have higher intention to receive Covid-19 vaccine. Cordina et al. (2021) supported this finding since it was reported that educational background had no effect on the willingness to take the vaccine. This finding, however, contradicted with past studies as delineated by Machida et al., (2021); Pastorino et al., (2021) who found that there was a significant relationship between the level of education and Covid-19 vaccination intention.

The overall findings of this study reported that the most significant predictor was Perceived Norms ($\beta = 0.332$, $p=0.000$) since the Beta value shown in the result was the highest among the other variables. This finding was in line with past research by Ogilvie et al., (2021); Shmueli, (2021); Mo et al., (2021); Husain (2021) and (Jeanine et al., 2020). However, there was also inconsistency with recent study by Sinclair & Agerstrom (2021); Fan et al., (2021) and (Thaker, 2021) who reported that the effect of perceived norms on vaccination intention was not persistent as compared to other predictors.

Conclusion

In this present study, the results showed that most of the youth population in Alor Setar had high level of Covid-19 vaccination intention. The results also revealed that there were significant correlations between attitude, perceived norms and mass media with Covid-19 vaccination intention. Interestingly, this study found that level of education did not correlate with the intention to receive the Covid-19 vaccine among youth population in Alor Setar. Moreover, in this study, it was found that perceived norms were the most significant predictor that affect the Covid-19 vaccination intention among youth in Alor Setar, Kedah.

In term of its implications, the vaccination rate in Malaysia reported by Ministry of Health is approximately 79.2 percent and it indicates that Malaysian population did not yet achieve the fully vaccination rate through the National Covid-19 Immunization Program that have been initiated since February 2021. To achieve herd immunity and fully vaccinated population, the issue of vaccine hesitancy in Malaysia should be addressed at the first place.

In the era of technology as the internet has become one of the primary sources of information about Covid-19 in Malaysia that consists of the websites and social media platforms. This was supported by Lau et al., (2021) who explained how the misinformation about the Covid-19 vaccines on social media had contributed towards low acceptance in vaccination uptakes in Malaysia. (Mo et al., 2021) also pointed out that the information about the benefits and potential risk of vaccination could affect an individual beliefs and intention to get vaccinated. Therefore, the intervention was needed by health professionals, authorities, and the government to provide accurate information and continuous health-related education about the benefits and efficacy of the Covid-19 vaccines. To support this statement, Wong et al. (2020) explained that it is vital to deliver accurate knowledge and information about the vaccines in order to obtain public's trusts on the vaccine as well as in response to the anti-vaccine propaganda.

Although this study has provided some valuable insights for future research, several limitations have been ascertained. The current study investigated on the predictors that affect the Covid-19 vaccination intention among youth population in Alor Setar. Nevertheless, at the time this study was conducted, the Covid-19 vaccination programme through the National Immunization Program (NIP) was already completed. Unfortunately, this study did not discover the factors or predictors that would affect the Covid-19 vaccination intention of the people on the additional vaccine or booster vaccine. In addition, to the best of our knowledge, there have been no specific studies conducted on the predictors that influence the intention to receive the Covid-19 additional vaccine or booster vaccine. Therefore, future research should explore the potential factors on how additional vaccine characteristics or booster vaccine would influence the Covid-19 vaccination uptake of the people. Hence, this may constitute the objective for future studies to investigate on the people's vaccination intention to receive the Covid-19 additional vaccine or booster.

The second limitation of this study was the small-scale of respondents since this study only carried out involving youths living in Alor Setar, Kedah. The study only focused on youths aged between 18 to 29 years old. Thus, the findings of this study did not precisely reflect the level of vaccination intention for the whole population in Malaysia. To support the statement, Chu & Liu (2021) stated that individuals who were above the age of 65 years old were more likely to be vaccinated against Covid-19 to protect themselves from vulnerable diseases. Hence, future research should discover more on the characteristics and types of respondents by carrying out a larger scale study. It can be done by including more respondents from all age groups as the findings of the study may differ. This is because the information and perspectives from different age groups may provide broader information and data about the predictors that may influence on the intention to receive Covid-19 vaccine. Thus, to ensure appropriate and applicability of the findings, a subsequent study with additional respondents from all age groups can be conducted.

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