

Original Article

Parents' Perception Towards the National COVID-19 Immunisation Programme for Children (PICKids): A Cross-sectional, Internet-Based Survey

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Abstract

The Ministry of Health Malaysia's (MOH) National COVID-19 Immunisation Programme for Children (PICKids) is a public health initiative aimed at achieving herd immunity and prevent illness among Malaysian children. The COVID-19 outbreak and the efficacy of the COVID-19 immunisation programme for children are facing tremendous stress among parents. The purpose of this study was to see how parents in Klang Valley, Malaysia viewed and accepted the COVID-19 vaccination for their children. Parents were distributed a set of questionnaires over social media via Qualtrics XM. A simple random sampling technique was used to choose the participants. The total number of participants in the study was 88, with 30 males (34.09%) and 58 females (65.91%). The findings show a statistically significant correlation between parents' knowledge of COVID-19 and their willingness to vaccinate their children.

Keywords: Parents' perception, COVID-19, immunisation, PICKids, internet-based survey

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Introduction

COVID-19, a new Coronavirus infection, originally emerged in late 2019 in Wuhan, China, and has since spread throughout the world. The COVID-19 epidemic has had a significant influence on children's health, social, and economic well-being.¹ According to the study, the majority of children have mild to moderate to severe asymptomatic disease or symptoms with rare cases of death.² In the United States, children accounted for 11.5% of COVID-19 cases, according to a recent research, and some of them had multisystem inflammatory illness (MIS).³ While in Malaysia, Multi System Inflammatory Syndrome in Children (MIS-C) recorded 50,826 cases as of February 2022.⁴ Children can potentially spread the sickness and parents are directly accountable for their children's health difficulties.⁵ Ending the COVID-19 pandemic

would be nearly difficult unless the pandemic's spread could be controlled across all age groups in society.

Approximately 470 million cases of COVID-19 have been reported globally between December 31, 2019 and February 20, 2022 with over 6 million fatalities.² Malaysia has 4.12 million cases, according to the Malaysian Ministry of Health (MOH) statistics.⁶ On January 25, 2020, Malaysia reported the first confirm case of COVID-19. Between January 25, 2020, and March 26, 2022, a total of 4,122,004 persons were infected with COVID-19, with 34,751 deaths.⁶

During the COVID-19 pandemic, a number of countries allowed children under the age of 18 to be vaccinated against the virus; nonetheless, parents are concerned about their children's COVID-19 vaccination. The Malaysian Ministry of Health

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(MOH) intends to provide COVID-19 vaccines to children aged 5 to 12 years old in order to prevent the outbreak.⁷ However, the government's plans to stop the outbreak, on the other hand, collide with parents' concerns about giving their children the vaccine. It is reported that in the United States, 65% of parents consented to give their children the COVID-19 vaccination to protect them from the disease.⁸ According to another survey, 48.2% of parents in the United Kingdom agreed to have their children under the age of 18 get the COVID-19 vaccination.⁹ In China, 72.6% of parents agreed that their children should be vaccinated against COVID-19¹⁰, whereas in New Zealand, 80% agreed.¹¹ In a cross-sectional study in Turkey, 36.3% of parents agreed to vaccinate their children with the COVID-19 vaccine¹², which was supported by another study in Turkey that found 38.4% of parents agreed to vaccinate their children with the COVID-19 vaccine.¹³

Parents' perceptions of the COVID-19 vaccination program to their children through the National COVID-19 Child Immunization Program (PICKids) in the Klang Valley, Malaysia were evaluate as the main objective of this study. During the epidemic and the media's influence on mental and emotional states, parents and children are under a great deal of stress. As a result, it's important to have a deeper understanding of parents' perspectives toward their children's COVID-19 vaccination.¹⁴ Furthermore, understanding the reasoning for various decisions made by health professionals is critical in order to reduce any misconceptions regarding the immunisation campaign and give additional help in combating the COVID-19 epidemic

Materials and Methods

The participants in this cross-sectional, internet-based survey were Malaysian parents of children from age 5 to below 12 years old. The information was gathered between February and March 2022. The survey was randomly distributed to the study population. The sample consisted of 115 participants who were recruited using the snowball sampling approach from people who actively use the internet and social media (e.g., WhatsApp and Facebook) and who agreed to participate in the study. We circulated 150 questionnaires, and 88 people answered, with the results being analysed.

Each parent's personal information, perceptions of the COVID-19 pandemic, and vaccination status

for COVID-19 were collected using an online questionnaire using Qualtrics XM. A preliminary survey was conducted with ten participants to ensure that there were no technical concerns and that the questions were valid and reliable. The results of the preliminary survey were not used in the study's analysis. The surveys were subsequently sent to family groups and individuals via social media.

The questionnaire asked about the respondent's age, gender, education level, occupation, household income, number of children, vaccination status, and if the respondent and family members had been infected with COVID-19. The National Covid-19 Immunisation Programme for Children (PICKids) was evaluated from the perspective of parents. To collect data, the researcher employed a three-point Likert scale (agree, not sure, disagree). The researcher also asked about the respondents' understanding of COVID-19. The final section of the survey investigated the factors that influenced parents' decisions about whether or not to vaccinate their children against COVID-19.

Participants were informed that by taking the survey, they were providing their informed consent to take part in the research and their participation was entirely voluntary and that their names would be kept anonymous. All questions must be completed in order to finish the survey. Having at least one kid between the ages of 5 and below 12 and residing in Klang Valley, Malaysia were also required. Not having a kid between the ages of 5 and below 12 and not living in Klang Valley, Malaysia were both the exclusion criteria.

The data was analysed with the Statistical Package for Social Sciences (SPSS) version 25.0 at a significance level of 0.05. The correlation between the variables was evaluated, and the degree to which the variables were associated was determined by evaluating the correlation between them. Descriptive statistics were used to report the categorical and quantitative variables (frequency, percentages, means, and standard deviations). Pearson's Chi-squared test was used to examine the relationship between categorical and outcome variables. Statistical significance was determined using a 0.05 *p*-value and 95% confidence intervals.

Results

Sociodemographic characteristics of participants:

Table 1 shows the sociodemographic data. There

were 88 participants, 58 were female (65.9%), 49 of participants were between the ages of 30 and 39 (55.7%), and 32 (36.4%) held a postgraduate degree. In terms of occupation, 35 (39.8%) of respondents worked in the private sector, while 4 (4.5%) were unemployed. In terms of family income, 36 (40.9%) reported monthly earnings of less than RM5000, while 7 (8.0%) recorded monthly incomes of more than RM15,000. The

majority of the participants (58.0%) had one or two children. The majority 51 (58.0%) of the 88 participants had received booster vaccinations. However, 5 participants (5.7%) received just one dose of the vaccination, while 15 (17.0%) did not receive it. In addition, COVID-19 had infected four of the participants (4.6%), whereas 53 (60.2%) of the participants had no family members who had been infected.

Table 1. Sociodemographic characteristics (n = 88)

Variables	N	(%)
Age		
18 - 29	5	(5.68%)
30 - 39	49	(55.68%)
40 - 49	28	(31.82%)
50 and more	6	(6.82%)
Gender		
Male	30	(34.1%)
Female	58	(65.9%)
Education		
Did not go to school	0	(0%)
Less than high school	0	(0%)
High school	6	(6.8%)
Diploma	19	(21.6%)
Bachelor's	31	(35.2%)
Postgraduate	32	(36.4%)
Occupation		
Student	6	(6.8%)
Private sector	35	(39.8%)
Government sector	34	(38.6%)
Unemployed	4	(4.5%)
Retired	3	(3.4%)
Freelancer	6	(6.8%)
Income		
Less than 5000	36	(40.9%)
(household / RM)		
5000 - 10,000	29	(33.0%)
10,000 - 15,000	16	(18.2%)
More than 15,000	7	(8.0%)

Number of children	1 - 2	51	(58.0%)
(5–11) years	3 - 4	26	(29.6%)
	≥ 4	11	(12.5%)
Vaccination status	non-immunized	15	(17.0%)
	immunized with 1 st dose	5	(5.7%)
	immunized with two doses	16	(18.2%)
	immunized with booster dose	51	(58.0%)
	recovered immune	1	(1.1%)
Has been infected with the COVID-19	No one from my family	53	(60.2%)
	Myself	4	(4.6%)
	One of my family	20	(22.7%)
	Me and one of my family	3	(3.4%)
	All of family members	8	(9.1%)

Data represented as number and percentage.

Table 2 shows that 52 (59.1%) of those participants agreed to vaccinate their children against COVID-19, while 9 (10.2%) disagreed and 8 (9.1%) were undecided. Table 2 also shows that there is no statistically significant correlations between age, gender, education, occupation, or income and the willingness of parents to vaccinate their children. Gender did not indicate a statistically significant relationship. With a p -value of 0.117, 36 (69.2%) females are more likely than men to

agree to vaccinate their children, with 16 (30.8%) agreeing to do so.

However, participants and family members who have been infected with COVID-19, on the other hand, show a positive correlation, with a p -value of 0.002. Furthermore, the participants' vaccination status proved to have no significant relationship, with a p -value of 0.092, and neither did their education level ($p = 0.831$) nor their family income ($p = 0.510$).

Table 2. Association of variables with the willingness of parents to give their children the vaccine (I intend to give my children who are 5–12 years old the COVID-19 vaccine)

Parameters	Agree	I Don't Know	Disagree	Chi-Squared	p-Value
Parents age group					
8–29	3 (5.8%)	1 (12.5%)	0 (0%)	2.675	0.848
30–39	29 (55.8%)	3 (37.5%)	4 (44.4%)		
40–49	17 (32.7%)	3 (37.5%)	4 (44.4%)		
50 and more	3 (5.8%)	1 (12.5%)	1 (11.1%)		
Gender					
Male	16 (30.8%)	3 (37.5%)	6 (66.7%)	4.285	0.117
Female	36 (69.2%)	5 (62.5%)	3 (33.3%)		
Education					
Did not go to school	0 (0%)	0 (0%)	0 (0%)	2.823	0.831
Less than high school	0 (0%)	0 (0%)	0 (0%)		
High school	4 (7.8%)	0 (0%)	1 (11.1%)		
Bachelor's	19 (36.5%)	3 (37.5%)	3 (33.3%)		
Postgraduate	19 (36.5%)	2 (25%)	4 (44.4%)		
Occupation					
Student	2 (3.8%)	1 (12.5%)	0 (0%)	10.953	0.361
Private sector	21 (40.4%)	2 (25%)	1 (11.1%)		
Government sector	23 (44.2%)	3 (37.5%)	5 (55.6%)		
Unemployed	2 (3.8%)	0 (0%)	1 (11.1%)		
Retired	1 (1.9%)	1 (12.5%)	0 (0%)		
Freelancer	3 (5.8%)	1 (12.5%)	2 (22.2%)		
Income (household)					
Less than 5000	17 (32.7%)	4 (50%)	4 (44.4%)	5.271	0.510
5000 - 10,000	17 (32.7%)	2 (25%)	3 (33.3%)		
10,000 - 15,000	13 (25%)	2 (25%)	0 (0%)		
More than 15,000	5 (9.6%)	0 (0%)	2 (22.2%)		
Number of children (5–12 years)					
1 – 2	29 (55.8%)	4 (50%)	3 (33.3%)	5.791	0.215
3 – 4	17 (32.7%)	2 (25%)	6 (66.7%)		
More than 4 children	6 (11.5%)	2 (25%)	0 (0%)		
Vaccination Status					
Non-immunized	8 (15.4%)	1 (12.5%)	1 (11.1%)	10.875	0.092
Immunized (first dose)	4 (7.7%)	0 (0%)	1 (11.1%)		

Immunized (two doses)	7 (13.5%)	1 (12.5%)	5 (55.6%)	
Immunized (booster)	33 (63.5%)	6 (75%)	2 (22.2%)	
Has been infected with COVID-19				
No one from my family	32 (61.5%)	5 (62.5%)	5 (55.6%)	
Myself	0 (0%)	0 (0%)	3 (33.3%)	
One of my family	11 (21.2%)	3 (37.5%)	1 (11.1%)	24.381
0.002*				
Me and one of my family	3 (5.8%)	0 (0%)	0 (0%)	
All of family members	6 (11.5%)	0 (0%)	0 (0%)	

Data were represented as number and percentage, Chi-squared test: * Significant at $p \leq 0.05$.

Table 3 shows the knowledge of COVID-19 vaccination among parents, as determined by survey questions. COVID-19 and its influence on society, children, and the safety of COVID-19 immunizations for children were among the subjects discussed by the participants. Gender (1.66 ± 0.477 , $p = 0.048$) and occupation (2.78 ± 1.198 , $p = 0.035$) were found to have positive relationships with vaccination knowledge. In contrast, there is no statistically significant relationship between age, education, family income, number of children, and vaccination status.

Table 3. Correlation of variables to assess the knowledge regarding COVID-19 and willingness to vaccinate children for COVID-19.

Variables	Mean	S. D	F Test	p-Value
Age				
18 - 29				
30 - 39	2.40	0.704	1.283	0.266
40 - 49				
50 and more				
Gender				
Male	1.66	0.477	1.155	0.048*
Female				
Education				
Did not go to school				
Less than high school				
High school	5.01	0.928	0.251	0.910
Diploma				
Bachelor's				
Postgraduate				
Occupation				
Student				
Private sector				
Government sector	2.78	1.198	0.980	0.035*

Unemployed				
Retired				
Freelancer				
Income (household / RM)				
Less than 5000				
5000 - 10,000	2.01	1.150	0.373	0.766
10,000 - 15,000				
More than 15,000				
Number of children (5–11) years				
1 - 2				
3 - 4	1.55	0.710	1.218	0.533
≥ 4				
Vaccination status				
non-immunized				
immunized with 1 st dose				
immunized with two doses	3.20	1.156	1.005	0.535
immunized with booster dose				
recovered immune				
Have they been infected with the COVID-19?				
No one from my family				
Myself				
One of my family	1.97	1.343	1.219	0.262
Me and one of my family				
All of family members				

Data represented as number, percentage, mean and standard deviation (SD); *Significant at $p \leq 0.05$.

The fear that they or their family members would get infected with COVID-19 ($n=52$, 75.36%) was the most important factors in parents' acceptance of the vaccination, as seen in Figure 1. Followed by their belief that children are at risk of contracting COVID-19 ($n=43$, 62.32%), and their belief that COVID-19 vaccines are effective in protecting children from COVID-19 ($n=41$, 59.42%). It also finds that 43.48% of participants ($n=30$) believed the COVID-19 vaccination information for children was accurate, studies on COVID-19 vaccines are sufficient ($n=26$, 37.14%) but only 26.09% ($n=18$) agree that COVID-19 vaccine must be mandatory for every children.

The notion that children have inherent immunity ($n=29$, 42.65%) is shown in Figure 2 as a key

reason for declining to vaccinate their children. Parent's belief ($n=22$, 32.35%) that the vaccine's objective was to make money rather than to end the epidemic was among other reason for parents' refusal to vaccinate their children.

Discussion

One of the pandemic's obstacles is people's distrust about immunizations.¹⁴ Concerned about the risks and long-term side effects of COVID-19 immunizations for children, including allergic reactions and infertility may cause parents experiencing worry and stress as a result. However, children must be vaccinated against COVID-19 as part of a public health plan to achieve herd immunity and avoid sickness in both children and adults.⁷

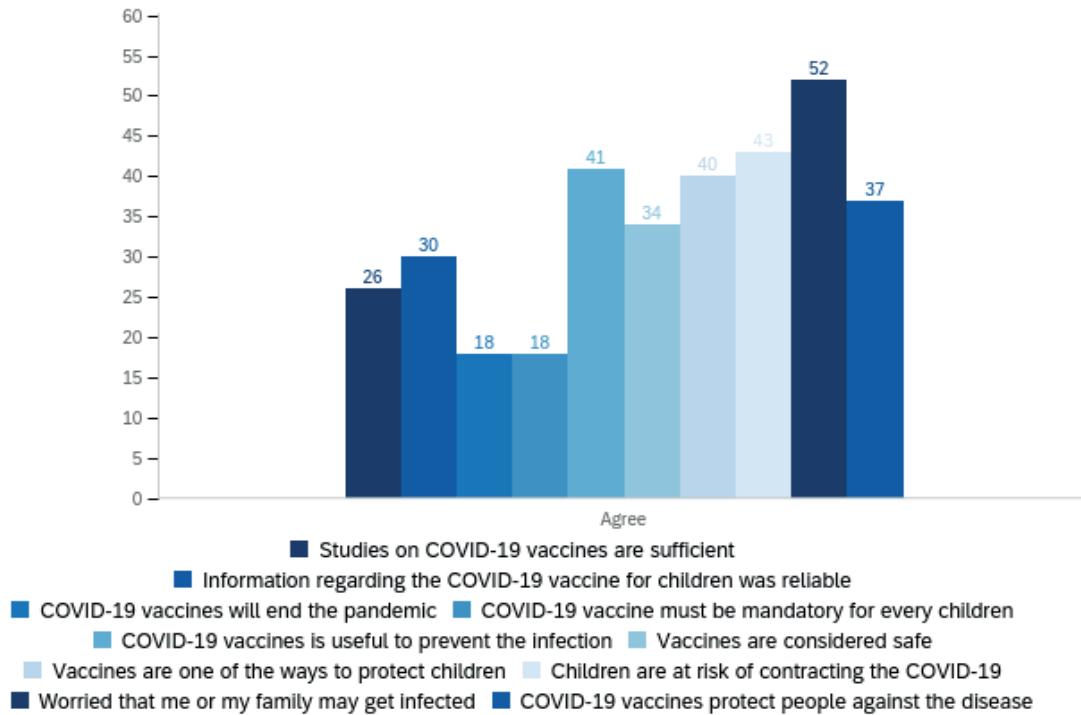


Figure 1. Reasons for parents' willingness to vaccinate their children for COVID-19

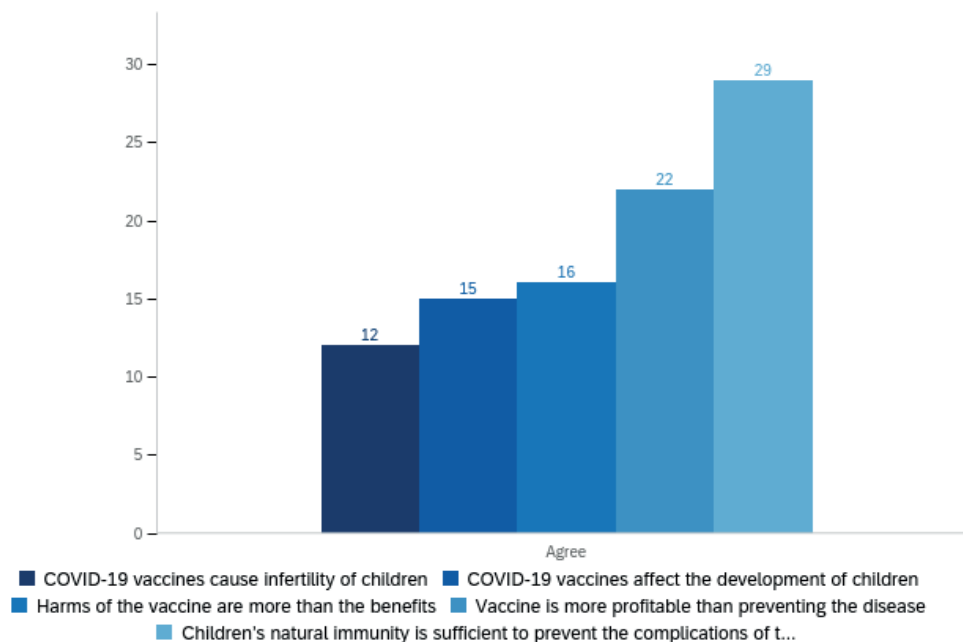


Figure 2. Reasons for parents' reluctance to vaccinate their children for COVID-19

When it comes to vaccinating children who have been exposed to rumours, this misleading information might be a significant barrier.¹⁶ To our knowledge, this is one of the first studies in Malaysia to find a correlation between parents' perceptions on their children receiving the COVID-19 vaccine and the number of children under the age of 12 who get vaccinated through

the PICKids programme.

Individuals place a high value on vaccine safety. In a convenience sample in the United States, a higher chance of choosing a vaccination was connected to a decrease in the frequency of major side effects of a hypothetical COVID-19 vaccine (before it was available) from 1/10,000 to 1/1,000,000.¹⁷

We found that majority participants (59.1%) agreed with the COVID-19 vaccination, while 10.2% disagreed with vaccines for their children and 9.2% were unsure. The current findings are different from those of studies conducted in the United Kingdom, United States, China, and New Zealand.¹⁶ Parents' attitudes about COVID-19 immunisation of their children are influenced by their age, gender, occupation, household income, and vaccination status.

Table 3 shows that gender and occupation were both significantly correlated with knowledge of COVID-19 and vaccination. The fear of their children and themselves becoming infected with COVID-19 was the most important factor in parents' acceptance of the vaccination, which is consistent with research done in the United States and Turkey.^{8,12,13} However, according to a study conducted in the United States and the United Kingdom, the belief that children have natural immunity sufficient to avoid COVID-19 viral consequences was the major reason why parents refused to vaccinate their children.^{8,9}

The perception that the vaccine's objective was to earn money rather than to stop the epidemic was the second issue that kept parents from getting their children vaccinated. According to our findings, 32.35% of parents refuse to vaccinate their children because they believe the vaccine's purpose is to profit from the pandemic rather than to combat it. This is similar to a UK study that indicated that vaccination apprehension was exacerbated by safety worries due to accelerated development.⁹ Only 7.67% of those who responded to our survey believed the COVID-19 vaccination for children was effective, which is a small percentage. This might be due to the effect of social media, misinformation, and unauthorised information.

According to Goldman et al. (2021), a population-based vaccination programme was initiated in Israel, which resulted in an increase in parents' willingness to vaccinate their children under the age of 12 years against COVID-19.¹⁴ Vaccinating Israel's entire population was efficient and successful, with 60% of the population receiving both the first and second doses within four months. Parents' initial desire to vaccinate their children increases when a significant majority of the population has been vaccinated.

In Canada, a low vaccination rate among the general population may have caused parents

to doubt the vaccination program's safety and efficacy, lowering their willingness to vaccinate their children. In a study on the frequency and extent of COVID-19 vaccine apprehension among Brazilian parents of children and adolescents, Bagateli et al. (2021) discovered that caregivers' vaccine hesitancy was quite low, that many parents who were previously hesitant were now ready to vaccinate their children against COVID-19.¹⁸ Likewise in April 2021, one-third of American parents refused to vaccinate their children, however polling firms revealed that many parents plan to vaccinate their children after waiting several months.¹⁴

According to the findings, parents' trust in the vaccination programme has eroded, leading to decrease in their readiness to vaccinate their young children. Vaccine hesitancy has been identified as a global barrier to vaccine programme adoption, with more than 70 factors that influence parents' willingness to vaccinate their children.¹⁹ The acceptability of COVID-19 immunizations has been affected as a result of this, which are now widely accessible, and concerns about the vaccine's safety have added to the uncertainty.

Certain research suggests that individualistic and collectivistic societies have different cultural traits, such as social group norms, and that, given equal chance and availability, certain countries are more likely to be vaccinated than others.²⁰ Individuals who believe that if a sufficiently effective vaccine is available, they should urge others to be vaccinated in order to achieve herd immunity while avoiding the danger of contracting the disease.²¹

Early perceptions of rapid vaccination success in other countries are likely to have influenced parents' decision to provide the vaccine to their children later. Parents may have decided that herd immunity provided enough protection and that their children did not need to be vaccinated once a specified threshold was achieved and the frequency of COVID-19 new cases began to decrease. An epidemic of a highly contagious Omicron variant occurred during our study, according to the Malaysian mainstream media, Utusan Malaysia, on March 8, 2022, resulting in an increased desire to vaccinate teens.²² Public health professionals must be vigilant and track the pandemic's progress to ensure that parental attitudes are properly monitored.

We hypothesised that implementing a new vaccine

programme with a positive media safety profile would increase parents' confidence in their decision to give their children the same vaccine, because safety is a critical factor in both adult vaccine considerations and parental decisions about the health of their children. The bigger the willingness trend of parents in a country, the sooner and more inclusive a country's vaccine implementation will be.

The study include a number of limitations. Firstly, the study's sample size was insufficient to adequately reflect the whole population of the Klang Valley. As a result, predictions of future trends have become more unclear. Secondly, this survey did not take into consideration parents' willingness to vaccinate their children, and parental opinions in this complicated and ever-changing pandemic were only examined to a limited extent after adjusting for a few key baseline criteria. Furthermore, because a higher percentage of the population has been vaccinated, trends may have altered, and public health specialists should interpret the findings of this study in light of country-specific concerns. Finally, as of March 2022, over 1 million children nationwide have received their first dose of vaccine, indicating a growing trend of parents immunising their children.

Conclusion

Parents' willingness to vaccinate their children

aged 5 to below 12 years against COVID-19 was enhanced via a comprehensive population-based vaccination programme. Governments and public health authorities should examine the impact of vaccination programme pace on parental decisions to vaccinate their children when contemplating future booster COVID-19 vaccinations. In addition, further research is needed to confirm the vaccine's safety. This study emphasises the significance of delivering the COVID-19 vaccination to children, particularly those who are vaccine hesitant. Immunization program must be flexible in order to meet parental concerns and attitudes, as well as the country's vaccination program's pace and mobilisation.

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