

COVID-19: Survey on Situation, Enthusiasm and Attitude for Vaccination of SARS-CoV-2 Boosters

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Abstract

COVID-19 has become a global phenomenon and a top priority for the world, making vaccine implementation a key tool for countries to address the problem. Boost refers to one additional supplementary vaccination following the completion of two doses of the SARS-CoV-2 vaccine, resulting in more than a 10-fold increase in antibody levels. The SARS-CoV-2 vaccine can maintain human immunity to the virus after antibodies have waned for some time. This study conducted a survey of the prevalence of SARS-CoV-2 vaccination in Guangdong Province, investigating SARS-CoV-2 vaccination among students and some educators, knowledge of the vaccine, attitudes, and the status of booster needle vaccination. Excel and SPSS software were used to analyze 166 samples. Five hypotheses were tested according to the data analysis, which are about the vaccination situation of SARS-CoV-2 vaccine, the relationship between people's understanding of the vaccine and the vaccination rate, people's attitude and enthusiasm towards the vaccine and the side effects of the booster injection of SARS-CoV-2 vaccine. This survey suggests that Policy-influenced vaccination intentions, rather than personal knowledge and understanding of the vaccine, were more strongly associated with the vaccination rates. , providing better reference to other pandemic and to areas with low vaccination coverage.

Keywords: SARS-CoV-2 vaccine, Questionnaires, Booster, Vaccination Policy

1. Introduction

Up to December 22th, 2022, according to incomplete statistics, a total of 641.93 million people has been diagnosed globally, and a total of 6.64 million people have died from COVID-19 infection (World Epidemic Statistics, 2023). The virus causing the symptoms of covid-19 spreads extremely rapidly, and there is currently no specific cure for this condition. Therefore, the development of vaccines that can prevent infection with this virus is important. Vaccines are autoimmune preparations of pathogenic microorganisms (e.g., bacteria, rickettsia, viruses, etc.) and their metabolites that have been artificially

attenuated, inactivated, or genetically modified to prevent infectious diseases (Vaccine, 2022). The advent of vaccines has allowed people to fundamentally avoid infections with a number of diseases that they do not need to struggle with the pain caused by these viruses or to think with great thought about how to treat them.

For decades, scientific research teams around the world have had a model of vaccine development to guarantee that vaccine development is safe and effective. However, pandemic diseases similar to COVID-19 have extremely high demands for the speed and efficiency of vaccine development, with no exception the need for a vaccine that can protect

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against the SARS-CoV-2 virus in countries during an outbreak. So different patterns of vaccine development may be followed during a pandemic and production levels may need to be expanded at an early age. There are already some vaccines that have completed the initial technological development and gradually move to the clinical stage, heralding the future with more and more vaccines coming to market. In 2021, WHO urgently approved the Kochi vaccination. Already in mid-April 2021, about 180 vaccine candidates were in the clinical stage, and another 88 were still in the clinical stage (Nagy and Alhatlani, 2021). And three vaccines, Pfizer / BioNTech, Moderna mRNA vaccines and Johnson viral vector vaccines, and AstraZeneca viral vector vaccine, Oxford, UK, are already in emergency use (Nagy and Alhatlani, 2021).

Today, these vaccines are at the forefront of innovative technologies. Viral vectors and nucleic acid vaccines not only are highly versatile technologies but can expedite vaccine production and scale-up production, meeting the demand for a vaccine among people during a pandemic (Wang, et al., 2020).

The technology of live attenuated and inactivated vaccines is more mature and can provide effective antibody immunity, but their development cycle is long, and the cost is high. The development of gene vaccines (mRNA vaccines, DNA vaccines) that require less time and are less expensive to produce in recent years has provided a good response to the sudden onset of disease but are less immune. Apart from that, adenovirus vectored vaccine is also progressing, and although the maturity of the industry is not high, the faster development rate, the lower cost, and the particularly good immune effect (both humoral and cellular immunity are particularly good) of this vaccine and can exert adjuvant effect are also very promising. These vaccines of different manufacturing processes are more or less applied to prevent a wide range of diseases. For instance, Human papilloma virus vaccine as the vaccine against tumor prevention. It helped many people, especially women, to avoid a series of diseases and cancers caused by HPV (HPV) virus (Maryam, et al., 2018).

The current development of vaccines against such

viruses has advanced, driven by societal needs as well as the efforts of researchers. However, the study still faces many problems, technical advances in bioinformatics and molecular approaches are needed to help recognizing novel epitopes, which leading to better vaccine design. And a deeper understanding of the SARS-CoV-2 virus, the development of different vaccines, and better vaccine design will all require time to study.

Booster needle refers to a vaccine dose that preserves human immunity to the virus in a supplemental manner, based on antibody waning, after completion of vaccination (COVID-19 Booster).

The significance of needle strengthening is particularly relevant, since a decline in antibody levels after a period of vaccination can lead to an increased probability that an individual will become ill.

For some people with low immunity, it is important to strengthen the vaccination of SARS-CoV-2 vaccine. Because even if they were given two shots of vaccine, they would not have enough immune response. In a study by Kamar et al., follow-up studies were conducted on patients with organ transplants with low immune function, and antibody levels increased by nearly thirty percent after re-administration of booster injections (2021). This study illustrates the vaccination of booster needles, especially for these people, is reasonable to be required and proved to be effective.

On 12 August 2021, the US Food and Drug Administration revised the emergency use authorization (EUAs) for the Pfizer biotechnology COVID-19 vaccine and Moderna COVID-19 vaccine to allow SARS-CoV-2 vaccines use in specific immunocompromised individuals who have undergone solid organ transplantation or are diagnosed with additional doses that are considered to have an equivalent level of immune compromise (Shekhar, et al., 2021). However, to safeguard the health of vaccinees and avoid the potential health risks associated with multiple vaccinations, the CDC claims that the third dose should be given three weeks after the second dose of Pfizer vaccine and the Moderna vaccine four weeks later. In addition, COVID-19 vaccination for adults 65 years of age and older, living in a nursing facility for an extended

period of time, with an underlying medical problem, or working or living in a high-risk environment. For example, individuals at increased risk of exposure to and transmission of COVID-19 due to occupational or institutional settings, such as first responders, educators, food and agriculture workers, correctional personnel, and public transport workers, are eligible for a dose of COVID- 19 vaccine (Shekhar, et al., 2021).

Vaccination with the inactivated vaccine accounts for a large proportion in China, whereas antibody levels in humans decline substantially after several months of vaccination with the inactivated vaccine, and vaccination with the SARS-CoV-2 vaccine booster needle is particularly important in China (New crown vaccine third needle, officially opened!, 2021). On 17, Sept 2021 vaccination with booster needle was officially opened and the vaccinated population under 12 years old will be included in the scope of vaccination. (New crown vaccine third needle, officially opened!, 2021).

2. Materials and Methods

2.1 Data Collection

The distribution and collection of original data for this 166 questionnaires were carried out through the Wenjuanxing (<https://www.wjx.cn/>), a typic website designed for managing questionnaires, for survey conduction. No patients or members of the public were directly involved in this study as no primary data were collected.

2.2 Statistical Analysis

The collected data of questionnaire were exported into Excel table, and analyzed using the online application software SPSSAU (version 23.0). A total of seventeen questions were catergorised into five

dimensions i.e personal information, vaccination status of the SARS-CoV-2 vaccine, personal knowledge about the vaccine, personal attitudes towards vaccination, and a follow-up survey of SARS-CoV-2 vaccine booster. The effectiveness and fitness of the research items of the questionnaire were studied using an item-analysis (table 2 and 5). The Pearson correlation coefficient(r) (table 6) and Linear Regression model (table 7) was used to determine whether there was statistical evidence to indaicate the relationship between the vaccination rate and personal knowledge and understanding of participants. The set scale of questions at same dimension were compared using t-test and the *p*-values were then recorded in the table where significances were denoted with an asterisk.

3. Results and Discussion

3.1 Personal Information

The three questions at the outset is about the subjects' age, residence and range of activity, and occupation. According to these questions, we can preliminarily determine the population of the sample and analyze its frequency. Ages 12to 18 accounted for the highest 70.48%. There is relatively more "Foshan" in the sample, with a proportion of 56.02%. In addition, more than 70% of the sample were "student". There is also 13.25% of samples are educators, which means the samples are mainly consists of dense contact population in educational organizations in Foshan and other districts of Guangdong Province, most of them are teenagers. The intensive ditribution of participants' occupation and age will give more clues to the the association between personal attitude and willing to take the SARS-CoV-2 vacine among the well-eduacted area.

3.2 Vaccination Status

Hypothesis 1: people who have completed the second vaccination accounts for the heaviest proportion in this section

Table 1. questions and options of vaccination status of the SARS-CoV-2 vaccine with scale

	Classification	Question	Options	scale	Skip Logic
4	single choice	Which of the following is your current SARS-CoV-2 vaccination status?	A I have not started vaccination yet	0	to Q9
			B the first injection has been completed	1	to Q10
			C the second injection has been completed	2	to Q11
			D the third injection has been completed	3	to Q12

Table 2. the result of item-analysis of question 4

Question	Groups (mean ± SD)		t (CR)	p
	high proficiency group (n=45)	low proficiency group (n=46)		
4	2.11±0.44	2.37±0.49	2.66	0.009**

** $p < 0.01$.

As shown in question 4(table 1), there is a scale from 0 to 3 for question 4. The item-analysis was performed to test whether the research items of the questionnaire are effective and appropriate (SPSS Online, 2022). The data was summed and divided into high score and low score groups (bounded by 27% and 73% quantiles), and then t-test was used to compare the differences between the averages of high score and low score groups (table 2).

The item-analysis of question 4 based on the participants' vaccination status showed a significance difference between high proficiency group and low proficiency group ($p < 0.01$) (table 2), indicating the scale was reasonably designed. We found that the second injection has been completed among this sampling accounted for the highest 73.49%. According to China's policy, for the types of people who often gather, it is required to complete two doses of SARS-CoV-2 vaccination, and centralized vaccination sites and vaccination time have been set up in many schools. And we can see most people tend to follow the encouragement of policies, which probably relates with the fact that nearly 90% participants are in education system.

However, despite the government opening and encouraging vaccination with the booster doses in the second half of 2021, vaccination rates with boosters remained low. Even though the primary population surveyed for this time was students within Guangdong Province, the number vaccinated with a boosters of SARS-CoV-2 was only 1.81% of the total. According to the province's news online, the boosters is mainly aimed at people at high risk of input, such as workers from customs, border checks, aviation, isolation sites, site directed medical facilities, people with relatively low immune function, people over 60 years of age, and people who are going to areas or countries at high risk of outbreaks because of the need for work, learning, and communication (New crown vaccine third needle,

officially opened!, 2021). And most of the subjects surveyed did not belong to one of the above three points, thus also explaining the lower vaccination rate. However, the school is a very densely contacted place, and even though the students surveyed are mostly teenagers and have better immune function, but the students out of the school have numerous staff members ranging in age from 18 to retirement and are all social, exposure to pathogens is not without it, Nor is there (although not much) incentive for low functioning individuals among the students. According to the present findings, the greatest beneficiaries of booster needles are immunocompromised populations (Shekhar, et al., 2021), but the decline in antibody numbers is seen some time after vaccination for all, and thus whether and how vaccination might be encouraged for students and, similarly, for populations prone to close contacts might require further research to prove and improve.

Based on this data, this survey examined the level of knowledge about the vaccine and attitudes. And to seek correlations and effects of these two aspects on the overall vaccination situation.

3.3 Personal Knowledge of Vaccine

Hypothesis 2: there is a relatively strong and positive correlation between the vaccination rate and people's understanding of the vaccine.

The purpose of this part of the questionnaire design was to see, by 3-question questions, the level of knowledge that the surveyed people had about vaccination policy and about the basics of vaccines in China. This section designs a 1 to 5 scale to measure how well people know about the vaccine(table 3). Of these, 1 represented that person didn't have any knowledge of the vaccine, 2 represented that person had little knowledge of the vaccine, 3 represented

that person had some knowledge of the vaccine but was not comprehensive, 4 represented that person had

much knowledge of the vaccine, and 5 represented that person had much knowledge of the vaccine.

Table 3. questions and options of the knowledge of SARS-CoV-2 vaccine with scale

	Classification	Question	Options		Skip Logic	Scale
5	single choice	Do you know that the SARS-CoV-2 vaccine can be vaccinated in China now?	A	yes	no	5
			B	no		1
6	single choice	Do you know how many shots are required for the SARS-CoV-2 vaccine in China?	A	one needle	no	3
			B	two needles		5
			C	three needles		3
			D	I do not know		1
			E	any number of needles are OK		1

Question 4 listed in table 4 is to check the knowledge of the investigated people about the vaccine (principle of action, group immunity). The scores corresponding to each option are shown in the figure. The text in the column ‘Options’ is the situation when the original data is collected. After collecting the original data, these data are processed and the text options are converted into the corresponding numbers of the scale. There are six

options in this question, of which three are the wrong description of the vaccine and the other three are the correct description of the vaccine. The wrong score is - 1 and the correct score is 1. This question is a multiple-choice question. In data processing, the total score of a single sample is converted into a scale of 1-5 points. The score conversion scale mechanism of question 7 is as follows: 0 for - 3, 1 for - 2 and - 1, 2 for 0, 3 for 1, 4 for 2, and 5

Table 5. the result of item-analysis of question 5, 6, and 7

Item-analysis Results				
Question	Groups (mean ± SD)		t (CR)	p
	high proficiency group (n=45)	low proficiency group (n=46)		
5	5.00±0.00	5.00±0.00	null	null
6	3.36±1.30	3.43±1.26	0.295	0.768
7	3.96±1.09	4.39±0.74	2.227	0.029*

It was assumed that the differences between 166 questionnaires are a result of different, yet related, intervention effects being estimated. As shown in table 6, the correlation analysis based on Pearson correlation coefficient was used to study the correlation between vaccination rate and people's understanding of vaccination policy and vaccine knowledge (SPSS Online, 2022). The specific analysis showed that the correlation coefficient between question 4 and question 6 is -0.148, close to

0, and the *p*-value is 0.056. The correlation coefficient between question 4 and question 7 is 0.037, close to 0, and the *p*-value is 0.637 (table 6). The result showed that there is no direct correlation between the vaccination rate and people's understanding of the vaccine. This may be due to the fact that the sample distribution is not strictly normal. And it's hard to assess precisely the willing and understanding about the vaccination with limited questions.

Table 6. the result of Pearson correlation of question 6 and 7 with question 4

Pearson Correlation (Detail)		
Question4		
Question 6	Coefficient	-0.148
	<i>p</i>	0.056
Question 7	Coefficient	0.037
	<i>p</i>	0.637

Regression analysis was then used to explore the influence relationship between X (quantitative or categorical) and Y (quantitative), whether there is an influence relationship, and how about the influence direction and degree (The SPSSAU project, 2021) (table 7).

Table 7. the result of Linear Regression of question 5, 6 and 7 with question

Parameter Estimates (n=166)									
	Unstandardized Coefficients			<i>t</i>	<i>p</i>	VIF	<i>R</i> ²	Adj <i>R</i> ²	<i>F</i>
	<i>B</i>	Std. Error	<i>Beta</i>						
Constant	2.267	0.712	-	3.183	0.002**	-	0.023	0.005	F (3,162) =1.269, P=0.287
Question 5	0.013	0.136	0.007	0.095	0.925	1.021			
Question 6	-0.067	0.036	-0.146	-1.872	0.063	1.012			
Question 7	0.018	0.048	0.029	0.37	0.712	1.013			
Dependent Variable: Question 4 (vaccination rate)									
D-W: 0.995									

** *p*<0.01.

By setting questions 5, 6, 7 as x and 4 as y, this survey explores whether people’s understanding of the vaccine is related to the vaccination rate. According to Table 11, taking question 6 and question 7 as independent variables and question 4 as dependent variables for linear regression analysis. From the above table, we can see that the model formula is Question 4 = 2.267 + 0.013 * question 5 - 0.067 * question 6 + 0.018 * question 7, and the R square value of the model is 0.023, which means that people’s understanding of vaccination policies and knowledge can explain the 2.3% change of vaccination rate. It is found that the model does not pass the F test (F = 1.269, p = 0.287), which means that people’s understanding of vaccination policies and knowledge will not have a significant impact on the vaccination rate, so it is impossible to specifically analyze the impact of independent variables on dependent variables.

According to the data analysis results of this part, hypothesis 2 is not tenable. In a word, people’s knowledge of the vaccine can slightly explain for vaccination, but it cannot directly affect the vaccination rate in this sampling.

3. 4 Attitude to Vaccination

Hypothesis 3: The willingness of taking SARS-CoV-2 vaccine booster are more determined by the subjective wishes of the people, whereas the number of previous doses that people have taken are more determined by objective conditions.

In this section, four questions are designed for investigate people's attitudes towards vaccines (table 8). For those who did not complete the three doses of vaccine, the reasons why they did not complete the vaccination were collected, and the respondents were asked about their motivation and reasons for vaccination.

For those who had not started the SARS-CoV -2 vaccine, the reasons were only physical and the organization did not have the vaccination (question 8), indicating that those who did not start the vaccination were all vaccinated without any SARS-CoV-2 because of objective conditions, whereas one chose 'no formal place to go for vaccination', illustrating that some regions also need to be investigated for formal vaccination points.

Table 8. questions and options of question 8, 9, 10 and 11

	Classification	Question	Options	
8	multiple choice	Which of the following is the reason why you did not start getting the SARS-CoV-2 vaccine?	A	physical reasons (such as inability to vaccinate due to taking certain drugs, history of drug allergy, etc.)
			B	age reason
			C	do not have time to vaccinate
			D	I do not think it is necessary to vaccinate
			E	there is no formal organization in the community that can be vaccinated
			F	I think the vaccine is unreliable
9	multiple choice	Which of the following is the reason why you did not get the second shot of the new coronavirus vaccine?	A	after the completion of the first injection, the time for the second injection has not been reached
			B	physical reasons (such as inability to vaccinate due to taking certain drugs, history of drug allergy, etc.)
			C	age reason
			D	do not have time to vaccinate
			E	I do not think it is necessary to vaccinate
			F	there is no formal organization in the community that can be vaccinated
			G	I think the vaccine is unreliable
10	multiple choice	Which of the following is the reason why you did not get the third shot of the new coronavirus vaccine?	A	after the completion of the second injection the time for the second injection has not been reached
			B	physical reasons (such as inability to vaccinate due to taking certain drugs, history of drug allergy, etc.)
			C	age reason
			D	do not have time to vaccinate
			E	I do not think it is necessary to vaccinate
			F	there is no formal organization in the community that can be vaccinated
			G	I think the vaccine is unreliable
11	multiple choice	What is your reason / motivation for getting the booster of SARS-CoV-2 Vaccine	A	I'm required to vaccinate (such as occupational requirements or work area requirements)

For question 9, there is 33.33% people choose option “After the completion of the first injection, the time for the second injection has not been reached”, “Physical reasons (such as being unable to vaccinate due to taking certain drugs, having a history of drug allergy, etc.)”, and “There is no formal organization

in the community that can be vaccinated”. Which are all objectives reasons.

For question 10, there is 53.28% people choose option “After the completion of the second injection, the time for the third injection has not been reached” and 24.59% people choose option “Age reason”,

which are both objective. There does have a little proportion of subjective reason that people did not get the third shot of SARS- CoV-2 vaccine, but most of them is because time has not been reached or because of age.

For the conclusion above, an addition question was asked to those people who has not injected the booster: if your physical reasons are excluded, are you willing to complete the three injections of the vaccine in time? 89.84% of them say “yes”.

According to question 11, there is 79.75% people think vaccination is very important, because it can prevent the epidemic starts from them, which shows people are already well equipped with a sense of preparedness as well as citizenship, and the vast

majority are vaccinated because of a subjective willingness to vaccinate with booster needles. Further, a large proportion of those vaccinated with the booster needle were determined by subjective will.

In summary, the hypothesis 3 holds according to the data analysis in this section.

Hypothesis 4: Most people have a negative attitude towards universal vaccination.

Two questions were designed to see people’s attitudes towards herd immunity (table 9). Both issues had acquisition of data for all samples.

Table 9. questions and options of question 12 and 13.

	Classification	Question	Options	
12	single choice	Do you think we should have universal vaccination?	A	It should be noted that the higher the vaccination rate, the more likely it is to achieve herd immunity, except that physical conditions do not allow it.
			B	More respect for personal wishes and ideas
			C	It is not necessary at all
13	single choice	What do you think of the long- term coexistence with COVID- 19 without vaccination?	A	Disagree. If everyone thinks so, there will be no herd immunity
			B	I do not quite agree. Once you come into contact with the virus, you will be infected
			C	Quite agree. I think this is a good idea and saves a lot of things
			D	not always. It should be discussed in different regions. There should be no big problem if we do not vaccinate in places that are not epidemic areas

From question 12, there were relatively more people choosing a with a proportion of 78.31%. It is believed that universal vaccination is very important. From question 13 (Table 18), more than 3% of the sample had a selected, and 37.35% had B. Neither option agreed on the way vaccination did not work with the COVID-19 outbreak over a long period of time.

According to the frequency analysis above, the hypothesis 4 does not hold. The vast majority were positive for herd immunity and universal vaccination. Moreover, the determinants of attitude towards

vaccination of people in fact are complex and reciprocal.

It is inferred from the test results of the hypothesis, and the conclusions drawn, that one is willing to vaccinate whether the vaccination is driven by each other for subjective and objective reasons, that is, endo - and exo driving. And the two drives differ in the stage at which they act as determinants. When people do not have any vaccination and the majority of people in the province area are not vaccinated, the reasons for people being vaccinated are mostly the requirements of the work unit or

centralized vaccination. Whereas when the number of vaccination needles reached two needles, those who were not inoculated with the third needle were mainly for physical or no reason to prescribe vaccination, nearly nine of those who were inoculated with the third needle were subjectively willing to go and receive the booster needle. Nearly nine percent of those surveyed had positive attitudes towards herd immunity and universal vaccination. That is, the attitude of people toward vaccination has changed from it, and also the phase change illustrates that after a period of coexistence with the COVID-19 outbreak, different anti-disease campaigns and anti plague policies have indispensable roles for the masses. With vaccination rates in China being as high as 85% in

data published in 2022 (Souhu, 2022), this series of facts has some implications for future use when faced with a new pandemic, or in other countries with low vaccination rates.

3.5 Follow-up Investigation After the Booster Vaccination

Hypothesis 5: Side effects may occur after vaccination, but it will not affect people's normal study, work, and life.

A follow-up survey was also done for this survey for those who had already been vaccinated with the booster dose (table 10).

Table 10. questions and options of question 14, 15, 16, and 17

	Classification	Question	Options	exist if...	
14	multiple choice	What are your side effects after the booster injection?	A	dizziness	Q4 chose D
			B	diarrhea	
			C	gastrointestinal discomfort	
			D	poor appetite	
			E	vomiting	
			F	weakness, fatigue, and drowsiness	
			G	runny nose	
			H	muscle soreness	
			I	I do not feel any discomfort	
15	single choice	When did your side effect start after the booster?	A	within half an hour after vaccination	
			B	half a day after vaccination	
			C	one to three days after vaccination	
			D	three days or more after vaccination	
16	single choice	How long did the side effect last after the booster injection?	A	within half an hour	
			B	within half an hour to one hour	
			C	about half a day	
			D	about one day	
			E	about three days	
			F	one week or more	
			B	continuous	
17	single choice	Are you required to stay for half an hour after the booster injection	A	yes	
			B	no	

A total of 38 individuals completed the SARS-CoV-2 vaccine booster vaccination, more than half of whom did not experience any side effects. Among the 14 people with side effects, 12 felt muscle soreness, 4 felt weak and 2 had a small cold. The

main discomfort is muscle soreness. There are no very serious side effects, such as cold and fever. The main discomfort is muscle soreness. There are no very serious side effects, such as cold and fever. Questions 15 and 16 investigated the start time and

duration of side effects in samples inoculated with booster needles. Half of the 14 people felt unwell half a day after vaccination, and nearly 60% of them had side effects lasting no more than one day, which would not have a great impact on people's study and work. The last question (question 17) is asking about whether the vaccination organization is required people to stay for half an hour after the booster injection, all of 38 people are required to stay for half an hour to see if there is any serious side effect. These results indicated that side effects may occur after vaccination, but it will not affect people's normal study, work, and life.

4. Conclusion

The survey collected the data of COVID-19 vaccination, among the sample of students and education in Guangdong, which consisting of objective data, personal feeling and attitude toward the normal vaccine and the booster.

We originally assumed that the vaccination rate is related to the knowledge and understanding of the population about the vaccine, so we designed the question to study the COVID-19 conventional vaccination rate and COVID-19 booster vaccination rate among participants, and then more questions designed to test the subjects' understanding of vaccine. However, the result of Pearson correlation coefficient and Linear Regression indicated that there is no direct correlation between personal understanding and knowledge of vaccine and vaccination rate. Furthermore, the impacts of personal attitude, in other words, whether people believe vaccine work or how easy they can get access to be vaccinated, to the vaccination rate are also concerned. Negative views towards COVID-19 are so common in the internet, which have certain influences, whereas the statistics showed that a large proportion of people holds positive views, which means most of the students and teachers in Guangdong believe that vaccine does work to protect them. It can be inferred that intention of being vaccinated is largely orientated by the government anti-pandemic policies, motivating by the convenient conditions the government was created, such as

increase vaccination points or provides free dozens, which increase the availability to get access to the vaccine.

In addition, the follow-up question of side effects that cause by the vaccination of COVID-19 booster is proved to be normal to most of the people, which it have little influence to border one's study or work.

We can attribute such data to the complexity of vaccine research and development, which requires a variety of technical support, including compliant clinical trials, and various procedures from clinical to market (Nagy & Alhatlani, 2021). The details of vaccine development are not what the public needs and wants to know. For them, what they are most concerned about is what kind of danger they are exposed to and how they need to be protected. Vaccine is one of the protection methods (Shekhar, Garg, Pal, Kottewar, & Sheikh, 2021). People will consider whether this method is effective and how much time and money it will take to obtain it. At this time, the promotion of policy is more important, because it is the key to convey effective information, and also an important link in determining the availability of vaccines. There is a reasonable inference that there are policy influences that are quietly driving citizens in this country closer to the decision about the vaccination.

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