

Preference of different Covid-19 vaccine brands among 2nd Year Medical students of Bicol Christian College of Medicine in Legazpi City, Albay, Philippines

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Abstract: Different Covid-19 vaccine have been developed following the emergence of the Covid-19 pandemic. The aim of the study was to determine the preference of different types of covid vaccine brands among 2nd Year Medical students of BCCM (Bicol Christian College of Medicine). 68 Participants (71.58%) preferred Pfizer Covid-19 vaccine, 66 Participants' (69.48%) preferred, 53 Participants (55.79%) preferred Sivnovac, 51 Participants (57.89%) preferred Sputnik, 49 Participants (51.57%) preferred Moderna while 48 Participants (50.52%) preferred Johnson and Johnson. This showed that all vaccines analyzed in this survey have gained acceptance and preference above 50%. This showed the level of awareness and acceptance of these and how it influenced the choices of these medical students and inferences can be made to a study on preference done in Australia (Borriello et.al, 2020).

Keywords: Covid-19 vaccine, Covid-19 pandemic.

1. INTRODUCTION

Preference of different types Covid-19 vaccine brands amongst 2nd Year Bicol Christian College of Medicine Students in Legazpi City, Albay, Philippines.

Covid-19 coronavirus which was initially called as SARS-CoV-2 was first discovered in Wuhan in December, 2019. Since then, the disease, now officially known as COVID-19, has been declared a pandemic, spread to most countries and claimed the lives of over 3.8million people (Worldometers, June, 2020).

Although there are several theories revolving around its emergence leading to viral misinformation (De Conick et al., 2021), it has caused a lot of devastation globally and it has become a household name.

Some theories proposed it came from in from bats linking it to other coronaviruses of zoonotic origin, even when there are no prior detections of SARS-CoV-2 (WHO, 2021). Other beta-coronaviruses such as SARS CoV (CoV (Severe Acute Respiratory Syndrome related Coronaviruses, 2002-03) and MERS-CoV (2012), have been spread through zoonotic outbreaks from other species to humans.

The spread of Covid-19 virus since its emergence in December 2019, has reached 220 countries and territories around the globe (Worldometers, 2021), regardless of the continuous efforts by WHO and Governments to contain the infection, due to the highly infectious nature of this virus and viral mutation (Anon, 2020a; Anon, 2020b). Different precautionary measures have been highlighted which can protect individuals from getting infected (WHO, 2020).

Vaccination is one of the assured ways of preventing viral diseases. In response to the Covid-19 several trials were conducted from different parts of the world which led to the discovery of new vaccines. Some of the vaccines which have met the WHO (World Health Organization) criteria for safety and efficacy include AstraZeneca, Johnson and Johnson, Moderna, Pfizer/BionTech, Sinoparm and Sinovac Novavax Covid-19 vaccines (WHO, 2021).

Some of these vaccines are available for the people in the Philippines but due to limited supply and fears of unknown side many have not been vaccinated, while many are willing to get vaccinated. This gave us a good ground for research to know the mindset of medical students regarding different Covid-19 vaccine brands.

The statement of the problem before commencement of the study was;

What is the preference of Covid-19 vaccine brands among medical students?

The study was designed to assess the hypothesis on what would be the preference of different types of covid vaccine brands among 2nd Year Medical students of BCCM (Bicol Christian College of Medicine). If they intend to prefer the brands run by the government and how do they plan to obtain them, as a study on preference was done on general population was done in Australia (Borriello et.al, 2020).

There was no study on the preference for different types of vaccines among Medicine students of BCCM prior to this research.

Our general objective for this study is the “Preference of Covid-19 vaccine brands”

Our specific objective was to conduct a study on preference of vaccine types Covid-19 vaccine brands amongst 2nd Medical students of Bicol Christian College of Medicine, Legazpi City, Albay, Philippines by asking them questions on risk and benefits, introduction of new vaccine types, level of awareness, mode of administration, reliability, cost and schedule of vaccination.

The significance shows the benefits of this study as but not limited to the following;

To find the preference of different types Covid-19 vaccine brands amongst Medicine students in Legazpi City, Albay, Philippines.

To find out the factors which led them to choose a particular kind of vaccine, if it helps them to understand the way they choose vaccine and

Create awareness among respondents about vaccines which is very essential till the pandemic ends globally.

Due to Covid-19 pandemic many lives are in danger and vaccination is an effective way to prevent the spread this disease. Although other preventive measures like using nose mask, consistent proper handwashing, use of ethyl alcohol, hand sanitizers and social distancing are of great benefit with strict compliance (Pan, Y, et al., 2020).

Much awareness created by Health Organizations, Governments around the world, News Agencies and on social media for the people regarding vaccination is really admirable. There are several vaccines available in the market there are opportunities for respondents to choose the one, they would prefer depending on several factors they have put into consideration based on the information available for each of the brands (Leng, et al., 2020)

This study examined choices of Covid-19 vaccine brands of the 2nd Year Medical Students of Bicol Christian College of Medicine Legazpi city and their reasons for choosing them.

Even when our respondent could not be directly accessed to prevent risk of exposure and maintain safety of both the researchers and our respondents due to pandemic situation, we conducted our research using online survey forms.

2. REVIEW OF RELATED LITERATURE

The pandemic spread of covid-19 diseases caused by SARS-COV-2 became a popular topic for discussion. It led to economic crisis and lockdown in so many countries, many research have been conducted to find solutions to stop the spread of the virus. Various control measures have been put in place by governments under guidelines and recommendations of world health organization (WHO) advise to help fight the pandemic situation created by COVID-19. Multiple researches have been conducted by the researchers regarding the search of the vaccine also. Many countries came up with their own vaccine to help the world in this pandemic. Because of the vaccination program there are many psychological and social effect on the front liners. Many researches have been carried out to check the mental health of the nurses and doctor who are continuously dealing with covid-19 patients. Because of the prolonged duty hours some of the physician feel separated

from the family and some of the front-liners have fear in their mind that they might go home and there are chances that they might infect their family members with SARS_COV-19 virus,

One research regarding the preference of vaccine conducted by the University of technology in Sydney, Australia, with their objective which was to investigate the vaccine characteristics for persons irrespective of their age, who were resident in Australia (Borriello et.al, 2020).

The main research was done for those to be given vaccine, at what point of time as there are cases of Covid-19 virus infection globally. The vaccines were not given to those whose who have the illness, fever, mild and severe body pains, cold, cough. The research was done on 2136 Australians, and were collected and analyzed in latent class model.

In West Bengal a state in India, a digital survey was conducted online (Gautam et.al, (2020)) regarding the acceptance and affordability of Covid-19 vaccines among the people of West Bengal. The research showed that people of West Bengal like vaccines made in India and which is lesser than 500 INR (Indian rupees). Among the 1078 individuals it was shown that 77.27% of population want vaccine and 12.24% don't know whether to take vaccine or not and rest 5.3% of people are not willing to take any vaccine.

Riham, et.al (2020) conducted online survey via the web link for Covid-19 vaccine preference analysis in the United Arab Emirates. In this article the vaccination preference was taken by the individuals who were the residents of United Arab Emirates. The survey was done through Google forms as the symptoms of those who got affected the Covid-19 in that area was gotten. By these they made a summary and included the symptoms related to antibiotics in the vaccine, which they wanted to give for the residents who were not affected with covid-19, to protect them and their nation.

The data was collected using snowball sampling methods as they were gotten from individual respondents through email, WhatsApp, and Microsoft Teams. There were 1109 respondents from 5 countries of UAE. Among the 1109 respondents ,279 people did not want to take the vaccine, 229 had little willingness, 256 people had moderate willingness and 245 people had quite a bit willingness.

Lazarus, et.al (2021) conducted a Global survey of potential acceptance of COVID-19 vaccination, their survey included 13,426 people from 19 countries to determine the potential acceptance of Covid-19 vaccine. According to their research, 6288 people completely agreed to be vaccinated, 3316 population somewhat agreed, 1912 were indifferent with no opinion, 891 disagreed, 1091 people are completely disagreed to be vaccinated. This study was reviewed because there is correlation between acceptance and preference.

Russell Kabir, et.al (2021) conducted a research for vaccination intent and willingness to pay for vaccine in Bangladesh, their research was conducted using the social media and 679 participants were responded to the invitation of researchers. More than 91.1% percent of population agreed to receive vaccine if they are properly informed about info about vaccine and 67.1% claimed that they would take the vaccine after many others have already took the vaccine. 77.5% of the participants are worried about the side effects of vaccine, 73.5 percent of the participant had the perception that after taking Covid-19 vaccine there would be less chance for them to get Covid-19. 46.9 % participants were concerned about the affordability and as Bangladesh is a Muslim country, 34.7% population were concerned about whether vaccine is halal for them or not.

Another research regarding the factors that are related to willingness and acceptance of SARS-Cov-2 vaccine from the adult subjects from China was conducted September,2020. There were 983 participants and among the total population 81.3% willing to receive the vaccine. Their conclusion was that Age, Education and vaccine perception might be key factors affecting the vaccine willingness and acceptance . Those who are less then age 30 were having positive perception regarding the vaccine (Liu, et al., 2021)

Tomacruz (2021), a reporter in the Philippines published an article on Feb25; which states that only 19% of the Filipinos say that they are willing to be vaccinated according to the OCTA RESEARCH GROUP. For this same research which was conducted from January 26- to Feb. 1,2021, 46% respondents said that they were not willing to be vaccinated, while 35% of respondents were not sure whether they would take the vaccination or not because their final decision were not made as at the time that study was done.

It was discovered that there were three major reasons for unwillingness of the vaccination among the Filipino respondents; The first reason was they were not sure if it would be safe or not as about 73% of the respondents had this opinion. 29% of the participants upheld second reason which was they were not sure of the efficacy of the vaccine, and the third reason

surprisingly was that 9% of respondents feel that vaccination is not needed at all for Covid-19 virus. 6% population were not going to be available to be vaccinated during the day due to their job. While 6% of population thinks it would be very costly for them to get vaccinated.

In our research which we conducted on 2nd Year Medical students of BCCM comprised of 95 participants. We did this research work using online survey via googles and emails

3. METHODS

Our Research Design was a cross sectional study design in which the participants were asked for the choice of Covid 19 vaccine brand they will like to have during the vaccination program.

The Validity and reliability of the collected data and, above all, their potential comparability with data from previous investigations were analyzed.

The questionnaires were distributed to the respondents and the instructions provided were duly followed by the respondents. This questionnaire was administered in English language.

The data collection for this study among 2nd Year Medical students of BCCM was conducted online from 22nd of May to June 4, 2021.

The subjects for this study, Preference of different types Covid-19 vaccine brands were 2nd Year Medical students of BCCM Legazpi City, Albay, Philippines. A total of 95 respondent on application of exclusion principle and criteria which was based on time frame.

The following vaccines were short-listed, from WHO

Sinovac: Inactivated

Sinopharma: Inactivated

Novavax Subunit

Johnson and Johnson: Viral-vectored

AstraZeneca: Viral-vectored

Moderna : mRNA

The sampling design of the study utilized probability sampling, technique on the collection of necessary data needed in the study. To determine the sample size of the population, a formula of Slovin's was employed.

$$n = N/(1+Ne^2)$$

Where: N = Total population

n – Sample population (Sample Size)

1 – constant

e – Level of error 0.05

The margin error was not higher than five percent of the population

The primary source of data consists of vital information from the respondents through the use of the questionnaire. The total population of 2nd Year Medical Students of Bicol Christian College of Medicine is 123 and we applied Slovin's formula to obtain 120 respondents out of total population. Researchers selected the respondents on random manner among the Dentistry students.

$$n = N/(1+Ne^2)$$

$$N = 123$$

e = Level of error 0.05

$$n = 123 / (1 + (123 \times 0.05^2))$$

$$n = 94.07$$

$$n = 95$$

Respondents were given the choices to choose from either “Yes” and “No” in the questionnaire and on the basis of that they indicated their preferred vaccine on the basis of demographic profile and remaining questionnaire. Highest percentages were prioritized in the discussion.

Measures

The contents of the questionnaire included (1) socio-demographic characteristics, such as age, sex (2) Preference of vaccine brands (3) Risk/ Benefit (scientific evidence) (4) Introduction of a new vaccine or new formulation (5) Mode of administration (6) Reliability and/or source of vaccine supply (7) Vaccination schedule (8) Costs (9) Role of healthcare professionals (10) Vaccination preferences for future COVID-19 vaccination acceptance. All questions were closed-ended, with tick boxes provided for responses.

4. DATA ANALYSIS

TABLE 1

Table 1 gives information about the demographics of our study participants.

Demographic Profile	f	Percentage (%)	RANK
A. Age			
18–20	5	5.3	4
20-22	35	36.8	2
22-24	43	45.3	1
25 & above	12	12.6	3
TOTAL	95		
B. Gender			
Male	62	65.2	1
Female	33	34.8	2
TOTAL	95		
C. Region			
Rural	49	51.6	1
Urban	46	48.4	2
TOTAL	95		

TABLE 2

A. Preference of vaccine brands	Yes		No		RANK
	f	%	f	%	
AstraZeneca	66	69.48	29	30.52	2
Sinovac	53	55.79	42	44.21	3
Moderna	49	51.58	46	48.42	5
Pfizer	68	71.58	27	28.42	1
Sputnik	51	57.89	44	42.11	4
Johnson and Johnson	48	50.53	47	49.47	6

TABLE 3.1

B. Risk/ Benefit (scientific evidence)	Yes		No	
	f	%	F	%
1. Do you think there is adequate safety information?	69	72.6	26	27.4
2. As far as you know are side effects or adverse reactions kept track of in your country?	65	68.4	30	31.6
3. Are you confident in the system for tracking adverse reactions or side effects to Covid-19 vaccinations in your country?	50	52.6	45	47.3

TABLE 3.2

C. Introduction of a new vaccine or new formulation	Yes		No	
	f	%	F	%
1. When a new vaccine is introduced, do you want to be the first to get it?	32	33.3	63	66.7
2. Would you rather wait and see what other people do?	62	65.3	33	34.7
3. Do you want to be among the first set of persons to know when a new vaccine is released?	69	72.6	26	27.4
4. Do you think that newer vaccines are as safe as older vaccines?	61	64.2	34	35.8

TABLE 3.3

D. Mode of administration	f		%		RANK		
Intramuscular	74		77.4		1		
Oral	20		20.8		2		
Nasal spray	1		1.9		3		
	Yes		No		Irrelevant		
	f	%	f	%	F	%	
Do you think there are other modes of vaccine administration possible? if yes? How?	11	22	35	70	4	8	
TOTAL	50						

Table 3.3 explains that out of 50 responses for the given question, 11 respondents answered yes for the other possible mode of vaccine administration, other than given in the questionnaire, out of which 3 respondents' states that intradermal or subcutaneous route of administration might be possible. Likewise 1 respondent suggested intravenous, were as 1 other respondent suggest only subcutaneous route of administration and 1 other suggests intradermal route only. Likewise some other respondents didn't suggest any but they think there is a possibility of other rote of administration.

TABLE 3.4

E. Reliability and/or source of vaccine supply	Yes		No	
	f	%	f	%
1. Do you feel confident that the health center or doctors office will have the vaccine you need, when you need them?	51	54.2	44	45.8

TABLE 3.5

F. Vaccination schedule	Yes		No	
	f	%	f	%
1. Do you think it is possible to have too many vaccines?	41	42.6	54	57.4
2. Is it better for you to have multiple vaccines in one shot with fewer injections?	36	37.4	59	62.6

TABLE 3.6

G. Costs	Yes		No	
	f	%	f	%
1. Would the cost of a vaccine prevent you from getting it?	56	52.3	51	47.7

Table 3.6 shows that more participant will ignore vaccination due to cost as 52.3% of our respondents indicate that cost would prevent them from been vaccinated

TABLE 3.7

H. Role of healthcare professionals	Yes		No	
	f	%	f	%
1. Did a healthcare professional recommend that you receive a vaccine?	74	77.8	21	22.2

Table 3.6 shows that more respondents have accepted the recommendations of healthcare professionals to take vaccines

TABLE 3.8

I. Vaccination preferences for future COVID-19 vaccination	Yes		No	
	F	%	f	%
1. Is Covid-19 vaccination is an effective way to prevent and control COVID-19?	84	88.4	11	11.6
2. Would you accept a new vaccination protocol if the COVID-19 vaccine is successfully developed and approved for listing in the future?	87	91.6	8	8.4
3. Is a Doctor's recommendation an important factor in vaccination decision-making?	86	90.5	9	9.5
4. Do you think vaccine price is an important factor in vaccination decision-making?	75	78.9	20	21.1
5. Do you prefer imported vaccine	73	76.8	22	23.2

Table 4

This table summarizes the result gotten from our entire research.

Demographic Profile	No of participants (b)	Total (n)	b/n	%
A. Age				
18-20	5	95	0.0526	5.26
20-22	35	95	0.368	36.84
22-24	43	95	0.452	45.26
25 & above	12	95	0.126	12.63
TOTAL				
B. Gender				
Male	62	95	0.652	65.26
Female	33	95	0.347	34.73
TOTAL				
C. Region				
Rural	49	95	0.515	51.57
Urban	46	95	0.482	48.42
TOTAL				
A. Preference of vaccine brands				
AstraZeneca	66	95	0.694	69.47
Sinovac	53	95	0.557	55.78
Moderna	49	95	0.515	51.57
Pfizer	68	95	0.715	71.57
Sputnik	51	95	0.536	53.68
Johnson and Johnson	48	95	0.505	50.52
B. Risk/ Benefit (scientific evidence)				
1. Do you think there is adequate safety information?	69	95	0.726	72.63

2. As far as you know are side effects or adverse reactions kept track of in your country?	65	95	0.684	68.42
3. Are you confident in the system for tracking adverse reactions or side effects to Covid-19 vaccinations in your country?	50	95	0.526	52.69
C. Introduction of a new vaccine or new formulation				
1. When a new vaccine is introduced, do you want to be the first to get it?	32	95	0.336	33.68
2. Would you rather wait and see what other people do?	62	95	0.652	65.26
3. Do you want to be among the first set of persons to know when a new vaccine is released?	69	95	0.726	72.63
4. Do you think that newer vaccines are as safe as older vaccines?	61	95	0.642	64.21
D. Mode of administration				
Intramuscular	74	95	0.778	77.89
Oral	20	95	0.210	21.05
Nasal spray	1	95	0.010	1.05
E. Reliability and/or source of vaccine supply				
1. Do you feel confident that the health center or doctors office will have the vaccine you need, when you need them?	51	95	0.536	53.68
F. Vaccination schedule				
1. Do you think it is possible to have too many vaccines?	41	95	0.431	43.15
2. Is it better for you to have multiple vaccines in one shot with fewer injections?	36	95	0.378	37.89
G. Costs				
1. Would the cost of a vaccine prevent you from getting it?	56	95	0.589	58.94
H. Role of healthcare professionals				
1. Did a healthcare professional recommend that you receive a vaccine?	74	95	0.778	77.89
I. Vaccination preferences for future COVID-19 vaccination				
1. Is Covid-19 vaccination is an effective way to prevent and control COVID-19?	84	95	0.884	88.42
2. Would you accept a new vaccination protocol if the COVID-19 vaccine is successfully developed and approved for listing in the future?	87	95	0.915	91.57
3. Is a Doctor's recommendation an important factor in vaccination decision-making?	86	95	0.905	90.52
4. Do you think vaccine price is an important factor in vaccination decision-making?	75	95	0.789	78.94
5. Do you prefer imported vaccine	73	95	0.768	76.84

5. DISCUSSION

In this study, we found out the preference of different Covid-19 brands among 2nd Medical students of Bicol Christian College of Medicine, in Legazpi, Albay, Philippines.

The study design was a cross-sectional design which involved the use of slovin's formula to calculate the sample size and a questionnaire with about 23 items was used for the survey

To the best of our knowledge, this is the first study on the Preference of Covid-19 vaccine amongst medical students in Legazpi, Albay, Philippines.

Our questionnaire was tailored based on availability of the vaccines. As such, participants gave their opinion for each vaccine.

68 Participants (71.58%) preferred Pfizer Covid-19 vaccine, 66 Participants (69.48%) preferred Sinovac, 53 Participants (55.79%) preferred Sputnik, 51 Participants (57.89%) preferred Moderna while 48 Participants (50.52%) preferred Johnson and Johnson. This showed that all vaccines analyzed in this survey have gained acceptance and preference above 50%.

6. CONCLUSION

From our research it was discovered that on a scale of 100, Pfizer Covid-19 vaccine was more preferred with 71.58% than others and Johnson and Johnson vaccine (50.52%) was least preferred with amongst 2nd Year Medical student of Bicol Christian College of Medicine and was attributed their level of awareness and acceptance of different Covid-19 vaccines.

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