

Anti-vaxxers vs. Pro-vaxxers: An Analysis of Select Manila Residents' Stand on COVID-19 Vaccination

Noel Bernard M. Cabe ^{a,g}, Franchezca G. Basilio ^{b,g}, Carlo Anton D. Concepcion ^{c,g},
 Reena Ysabela R. de la Cruz ^{d,g}, Lyzander Jonathan D. Faustino ^{e,g},
 Marielle M. Micu ^{f,g}

^a noelbernard.cabe.pharma@ust.edu.ph, ^b franchezca.basilio.pharma@ust.edu.ph, ^c carloanton.concepcion.pharma@ust.edu.ph, ^d reenaysabela.delacruz.pharma@ust.edu.ph, ^e lyzanderjonathan.faustino@ust.edu.ph, ^f marielle.micu.pharma@ust.edu.ph,

^g University of Santo Tomas Faculty of Pharmacy Medical Technology, España Blvd, Sampaloc, Manila, 1008 Metro Manila, Philippines

Abstract

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), launched the COVID-19 pandemic putting the majority of the countries on lockdown. As vaccine development pursues, the need to analyze the determinants of vaccine hesitancy among Filipinos are paramount in order to address poor vaccine uptake and boost vaccine acceptability. This study is a descriptive-comparative study that compares the stand of select Manila residents' pro-vaxxers and anti-vaxxers and the factors that affect their perspective on COVID-19 vaccination. A survey questionnaire was disseminated online to respondents who are qualified based on the following criteria: Filipinos ages 18 to 65 years old who are Manila City residents, at least secondary school graduates, are willing to be involved in the study, and have not contracted the virus nor received a vaccination for it. Out of the 189 participants of the study, 180 of which were classified as pro-vaxxers and 9 as anti-vaxxers. After analysis of data, the respondents, in general, agree that Safety and Effectivity ($x=3.08$), Trust ($x=2.88$) and Social ($x=2.44$) factors positively affect their COVID-19 perspective while Experiences ($x=1.66$), Beliefs ($x=1.74$), and Financial ($x=2.45$) factors were less likely to affect their perspectives. An unpaired t-test was also used on the factors to determine the significant difference in the perspectives of the two groups, whose results are as follows: Safety and Effectivity ($p = 0.650$), Trust ($p = 0.033$), Social ($p = 0.003$), Experiences ($p = 0.325$), Beliefs ($x = 0.029$), and Financial ($p = 0.050$). Four of these factors namely Trust, Social, Beliefs, and Financial were found to have a significant difference ($p \leq 0.05$).

Keywords: Anti-vaxxers; Pro-vaxxers; Pandemic; COVID-19; Vaccines; Vaccine Hesitancy; Perspective; Philippines

1. Introduction

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a virus that started its outbreak in the first quarter of 2020. This virus was first discovered in Wuhan, China that later became a global pandemic causing an increase in the global mortality rate. As of June 21, 2021, the World Health Organization (2021) recorded an estimated 3,865,738 deaths globally and 23,621 deaths in the Philippines.

Apart from the loss of many lives, Jackson et al. (2020) mentioned that the Congressional Research Service predicts that COVID-19 could cause an economic crisis and major decrease in economic growth, ranging from 3% to 6% during the year 2020. The tourism sector, to mention, is greatly affected by the pandemic and is estimated to have a drastic decrease in total output of 50%-70%. With that, the GDP of each country each

month will suffer tremendously (Chakraborty and Maity, 2020).

Eventually in August, the Philippines succumbed to an economic recession which marked the sharpest drop on record, with a 16.5% economic shrinkage in the second quarter of the year (Rivas, 2020). Consequently, an estimated number of 4.6 million Filipinos were left unemployed, with over 7.6 million households pushed to experiencing involuntary hunger (Philippine Statistics Authority, 2020; Social Weather Stations, 2020). Moreover, the National Economic and Development Authority predicts a poverty incidence rate of 15.6%-15.7% and an increase in unemployment in the Philippines until 2021 (Lopez, 2020). The United Nations Children's Fund (UNICEF, 2020) also claims that an additional 120 million children primarily in South East Asia are bound to be pushed to poverty due to the continuous spread of the virus.

With the current crisis brought by the COVID-19 pandemic, efforts to speed up the development of a vaccine for COVID-19 have been ongoing with over 42 vaccine candidates in the clinical evaluation and another 151 in the pre-clinical evaluation stage. The hopes of a vaccine could mean saving millions of lives and preventing deaths which already amounted to 119, 167, as of October 4, 2020 in South East Asia alone (WHO, 2020). Additionally, the development of a vaccine also indicates the start of recovering from the economic shock and losses brought upon by the pandemic (Agrawal, Conway, & Sabow, 2020).

Despite the benefits to vaccination, there is still a percentage of Filipinos who are against or have hesitancy in getting vaccinated.

In the Philippines, a noticeable decrease in vaccine confidence among Filipino families was observed following the dengue vaccine scare back in November 2017 (Larson, 2018). According to Damicog (2020), the Public Attorney's Office revealed in a report that there are about 157 cases of children suspected to have died following the controversial Dengvaxia vaccine, causing uproar among Filipino families. With a confidence rate of 82% in 2015, only 21% of Filipinos in 2018 strongly agreed that vaccines are indeed safe (Larson, 2018).

Statistics from DOH (2018) also showed a decreasing trend in the percentage of Filipino infants being vaccinated with some vaccines from 2015 to 2018. This includes the Oral Polio Vaccines--OPV1 at 79% to 67%, OPV2 at 76% to 66% and OPV3 at 75% to 66%, MCV1 at 77.78% to 66.96%, and MCV2 or MMR at 64.09% to 58.70%.

As a matter of fact, the Department of Health (2019) declared a measles outbreak during the first quarter of 2019 and confirmed the re-emergence of poliovirus in the last quarter of the same year, all of which are attributed to the vaccine hesitancy of Filipinos.

This problem of decreasing vaccine confidence is not exclusive in the Philippines, but is prevalent around the world. In fact, WHO (2019) included vaccine hesitancy as part of the ten threats to global health in 2019.

This study tackles the percentage of Filipinos in the working age groups who are for and against getting vaccinated with possible COVID-19 vaccines, including the variables that positively and negatively affect their perspectives.

The findings of the study redound to the understanding of the viewpoints and sentiments of Filipinos in the working age groups regarding COVID-19 vaccinations. The greater the confidence and trust of Filipinos to

vaccines, the more likely the population would initiate to have vaccines administered, eventually leading to reduced disease transmission.

Aside from assessing the perspectives of the community, this would be helpful in determining the approach for the education of misinformed and unenlightened members of the community based on the results of the study.

Nomenclature	
A. Anti-vaxxer	a person who does not agree, an individual with reservations with the idea of vaccination or a person who has a negative perspective on vaccination.
B. Beliefs	statements which the participants accept or consider as true; does not include religious matters.
C. Determinants/ Factors	refer to causes which affect the perspectives of the participants towards vaccination.
D. Experience	personal encounters, particularly those involving vaccines.
E. Financial	factors affecting one's decision in terms of purchasing and those related to money, which include the likelihood of spending for necessities rather than vaccines and cost of vaccines.
F. Immunization	process where a person is made to be immune or resistant to infectious diseases through administration of vaccines.
G. Pro-vaxxer	a person who agrees with the idea of vaccination; positive perspectives on vaccination.
H. Safety and Effectivity	refers to the absence of harm and danger as well as the ability of the vaccines to prevent diseases.
I. Social	influences coming from peers, family members including their perspective on vaccination.
J. Trust	factor that build up one's confidence towards vaccines and immunization, particularly towards authorities tasked in the manufacture, distribution, and administration of vaccines.
K. Vaccines	substance containing a weakened state of a microorganism or its parts in order to induce immunity.
L. Vaccine Confidence	refers to the reliance on vaccines and likelihood of vaccine uptake.

M. Vaccine hesitancy	pertains to reluctance or refusal to accept vaccination.
N. Working age group	refers to those aged 18-65 years old, with or without work.

2. Methodology

This section conceptualizes the research design, the instrumentation used in conducting the study and how it was validated to ensure the applicability of the results to its desired population. Additionally, this section also explains how the gathering of data was conducted.

2.1 Research Designs

The study, ‘Anti-vaxxers vs Pro-vaxxers: An Analysis of select Manila residents’ stand on COVID-19 vaccination’, utilized a descriptive-comparative research design. According to Formplus (2021), this type of research approach involves two variables being compared without manipulation, and establishing which of the two is better than the other. Furthermore, Nassaji (2015) stated that it is used to outline a phenomenon. This approach is appropriate as the study aims to determine the difference between the perspectives and factors that provide more influence on the decision of select Manila residents’ to undergo vaccination.

In this study, the respondents were separated into Anti-vaxxer and Pro-vaxxer. The data were then compared to factors such as financial, belief, experiences, social, trust and safety and effectivity.

The data were collected using a survey questionnaire administered using an Online platform, Google forms. The aforementioned survey utilized a 4-point Likert scale for the quantification of data.

2.2 Subjects and Study Site

This research used a purposive sampling technique. Purposive sampling is a technique used in qualitative research where researchers choose the participants of the study based on their own sound judgement (Black, 2010). The ideal sample size used was determined through power analysis with an actual power of 0.96 and the sample size generated being 180 as seen in Figure 3. The 180 respondents were selected following the inclusion criteria set by the researchers. The inclusion criteria are as follows: participants aged between 18 and 65 who at least graduated secondary school, currently living in the City of Manila, who have not contracted the COVID-19 disease, who have not received the vaccine, and who are willing to be involved in the study.

Exact - Generic binomial test		
Analysis:	A priori: Compute required sample size	
Input:	Tail(s)	= Two
	Proportion p2	= 0.8
	α err prob	= 0.05
	Power (1- β err prob)	= 0.95
	Proportion p1	= 0.5
Output:	Lower critical N	= 19.0000000
	Upper critical N	= 19.0000000
	Total sample size	= 180
	Actual power	= 0.9609293
	Actual α =	0.0435793

Figure 1. Power Analysis on Total Sample Size Determination

2.3 Data Gathering Procedure

In gathering the data, the survey questionnaire was given to the subjects, administered online through Google forms and disseminated through the social media sites Facebook, Instagram, Twitter, as well as the messaging application, Messenger. Initially, a post regarding the thesis, its purpose and general overview, as well as the 41 direct link to the survey questionnaire, was made on the social media sites Facebook, Instagram, and Twitter on each of the authors' accounts to gather willing and qualified participants. Additionally, the Messenger application was also utilized by sharing of the direct links of the survey to possible participants of the study. The participants who were selected are the users who qualified for the requirements and those who either commented on the Facebook post, replied through a tweet, and or privately messaged the authors expressing their intent to participate in the survey.

In answering the online survey, the participants were again reminded about the contents and purpose of the survey questionnaire. Each respondent was given the same set of questions with no time limit in answering.

A total of 189 respondents participated in the study and the obtained results were encoded in an online platform, specifically Google Sheets. The data were also stored in a local backup in a hard disk drive by one of the researchers.

The data were then subjected to data analysis to form conclusions.

2.4 Data Analysis

The responses were recorded and compiled online through Google Sheets, and were backed-up locally in a hard disk drive. All data from the responses were included in the data analysis.

The responses were divided into Anti-vaxxers and Pro-vaxxers, based on the respondent's answer to the statement: "I have a positive perspective towards COVID-19 vaccines."

The responses, 'Slightly agree' and 'Strongly agree' fall into the category of agreeing, while 'Slightly disagree' and 'Strongly disagree' were categorized as disagreeing.

This was then categorized to the factors: financial, belief, experiences, social, trust, and safety and effectivity factors.

Descriptive and Inferential statistics were utilized. For descriptive statistical tools, percentage, mean and standard deviation were used. Percentage was calculated by taking the frequency in the specific category divided by the total number and multiplying by 100%. Mean, or more commonly known as average, refers to the sum of the values divided by the number of data in a set. Standard Deviation was used to measure the dataset's distribution relative to its mean.

Inferential statistical tools particularly, Independent T-Test, were used to determine the difference between the perspectives and the factors. An independent t-test, otherwise known as two sample t-test, was done to determine if there was a significant difference between the two independent or unrelated samples.

2.5 Ethical Consideration

Before the self-imposed participants partake in the study, they were briefed on the details of the study that they were about to participate in. This included a brief introduction on the purpose of the research, participant selection, voluntary participation, procedures for data gathering, duration of answering the questionnaire, benefits of participating in the study, confidentiality, reconfirmation for the right of the participant to refuse or to withdraw from the study, and contact information of the researchers in case there are any questions. The participants were asked to sign the consent form placed at the beginning of the questionnaire to indicate that they understood the conditions and still agreed to take part in the survey.

3. Results

This chapter presents the obtained results and its discussion of this study. The findings are presented under the following: demographic profile, descriptive statistics, Ttest, and discussion.

Table 1. Demographic Profile of Respondents

	Frequency	Percent
Sex		
Female	138	73.0
Male	51	27.0
Total	189	100.0
Age		
18-27	144	76.0
28-37	11	6.0
38-47	20	11.0
48-57	11	6.0
58-above	3	2.0
Total	189	100.0

Table 1 displays the demographic profiles of the respondents based on their age and sex using frequency and percentage. There are 138 female respondents and 51 male respondents, which makes females the majority respondents of the survey at 73%. The age distribution of participants included 76% who were ages 18-27, 6% who were ages 28-37, 11% who were ages 38-47, 6% who were ages 48-57, and 2% who were ages 58 and older.

4.1 Descriptive Statistics

Table 2. Frequency of Perspectives Towards Vaccination

		Frequency	Percent
Valid	Negative	9	4.8
	Positive	189	95.2
	Total	189	100.0

Table 2 shows that out of the 189 respondents, 180 had positive perspectives while only 9 respondents had negative perspectives towards COVID-19 vaccination, which shows that 95.2% of the total respondents surveyed had positive perspectives.

Table 3. Frequency of Respondents Willingness to Get Vaccinated of COVID-19 Vaccine

		Frequency	Percent
Valid	Strongly disagree	3	1.6
	Disagree	10	5.3
	Agree	46	24.3
	Strongly agree	130	68.8
	Total	189	100.0

Table 3 shows that out of 189 respondents, 93.1% (176/189) of the respondents were classified as willing to get vaccinated with the COVID-19 vaccine at 68.8% Strongly agreed and 24.3% Agreed and 6.9% were classified as not willing at 1.6% Strongly disagreed and 5.3% Disagreed.

Table 4. Frequency of Respondents Willingness to Get Vaccinated of COVID-19 Vaccine After a Few Years

		Frequency	Percent
Valid	Strongly disagree	51	27.0
	Disagree	84	44.4
	Agree	32	16.9
	Strongly agree	22	11.6
	Total	189	100.0

Table 4, on the other hand, shows that 28.5% (54/189) were classified as willing to get vaccinated

only after a few years (16.9% Agreed and 11.6% Strongly agreed) while 71.4% (135/189) were not willing to get vaccinated against the virus only after a few years (27% Strongly disagreed and 44.4% Disagreed).

4.2 T-test: Perspectives Towards Vaccination

4.2.1. Safety and Effectivity

Table 5. T-Test of Safety and Effectivity

	Frequency	Mean	Standard Deviation	T value	P value	Significance
Positive (pro-vaxxer)	180	3.0833	.50556	.455	.650	Not Significant
Negative (anti-vaxxer)	9	3.0000	1.0000			
RANGE: Strong Disagree (1 - 1.75); Disagree (1.76-2.50); Agree (2.51-3.25); and Strongly Agree (3.26 - 4.0)						

Table 5 shows that Pro-vaxxers ($x = 3.0833$) and Anti-vaxxers ($x = 3.0000$) agree ($y = 2.51 - 3.25$) with the statement concerning Safety and Effectivity. The obtained p-value (0.650) interprets that no significant difference exists between the Safety and Effectivity factor and the perspective of the respondents to COVID-19 vaccination.

4.2.2. Financial

Table 6. T-Test of Financial

	Frequency	Mean	Standard Deviation	T value	P value	Significance
Positive (pro-vaxxer)	180	2.4389	.60873	1.647	.050	Significant
Negative (anti-vaxxer)	9	2.7778	.44096			
RANGE: Strong Disagree (1 - 1.75); Disagree (1.76-2.50); Agree (2.51-3.25); and Strongly Agree (3.26 - 4.0)						

Table 6 shows that Pro-vaxxers ($x = 2.4389$) disagree with the statement concerning Financial factors, while Anti-vaxxers ($x = 2.7778$) only agree. The obtained p-value = 0.050 shows that there is a significant difference between the financial factor and the perspectives of the respondents to COVID-19 vaccination.

4.2.3 Trust

Table 7. T-Test of Trust

	Frequency	Mean	Standard Deviation	T value	P value	Significance
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Positive (pro-vaxxer)	180	2.9000	.74068	1.802	.033	Significant
Negative (anti-vaxxer)	9	2.4444	.72648			
RANGE: Strong Disagree (1 - 1.75); Disagree (1.76-2.50); Agree (2.51-3.25); and Strongly Agree (3.26 - 4.0)						

Table 7 shows that Pro-vaxxers ($x = 2.9000$) indicate that they agree with the statements and trust the authorities while Anti-vaxxers ($x = 2.444$) disagree with the statements and mean they do not trust the authorities, which affect their perspectives. The obtained p-value is 0.033 which interprets that there is a significant difference between the trust factor and the perspectives of the respondents to COVID-19 vaccination.

4.2.4. Experiences

Table 8. T-Test of Experiences

	Frequency	Mean	Standard Deviation	T value	P value	Significance
Positive (pro-vaxxer)	180	1.6500	.71281	.987	.325	Not Significant
Negative (anti-vaxxer)	9	1.8889	.60093			
RANGE: Strong Disagree (1 - 1.75); Disagree (1.76-2.50); Agree (2.51-3.25); and Strongly Agree (3.26 - 4.0)						

Table 8 shows that Pro-vaxxers ($x = 1.6500$) indicate that they strongly disagree that experiences affect their perspectives on COVID-19 vaccination while Anti-vaxxers ($x = 1.8889$) only disagree. The obtained p-value is 0.325 which interprets that no significant difference exists between the experiences factor and the perspectives of the respondents to COVID-19 vaccination.

4.2.5. Beliefs

Table 9. T-Test of Beliefs

	Frequency	Mean	Standard Deviation	T value	P value	Significance
Positive (pro-vaxxer)	180	1.7167	.65395	1.543	.029	Significant
Negative (anti-vaxxer)	9	2.3333	.70711			
RANGE: Strong Disagree (1 - 1.75); Disagree (1.76-2.50); Agree (2.51-3.25); and Strongly Agree (3.26 - 4.0)						

Table 9 shows that Pro-vaxxers ($x = 1.7167$) strongly disagree that beliefs affect their perspectives on COVID-19 vaccination, while Anti-vaxxers ($x = 2.3333$) only disagree. The obtained p-value is 0.029 which interprets a significant difference between the beliefs factor and the perspectives of the respondents to COVID-19 vaccination.

4.2.6. Social

Table 10. T-Test of Social

	Frequency	Mean	Standard Deviation	T value	P value	Significance
Positive (pro-vaxxer)	180	2.9389	.59008	2.977	.003	Significant
Negative (anti-vaxxer)	9	2.3333	.70711			
RANGE: Strong Disagree (1 - 1.75); Disagree (1.76-2.50); Agree (2.51-3.25); and Strongly Agree (3.26 - 4.0)						

Table 10 shows that Pro-vaxxers ($x = 2.9389$) agree on the statements concerning Social while Anti-vaxxers ($x = 2.3333$) disagree. The obtained p-value is 0.003 which interprets a significant difference between the social factor and the perspectives of the respondents to COVID-19 vaccination.

4. Discussion

This study shows that 95.2% of select Manila residents' in the working age group (18 - 65 years old) have positive perspectives towards COVID-19 vaccination. Willingness to be vaccinated was high among the participants of the study, where 93.1% of the respondents were willing to be vaccinated, while only 6.9% were not willing. When asked if they were willing to be vaccinated only after a few years, 28.5% of the participants were willing while 71.4% were not. Still a huge majority of the participants prefer to be vaccinated than after a few years later, which could be attributed to the increased severity of the outbreak in the country. As stated in the study of Determann and Korfrage (2014), the increased severity of the pandemic causes an increase in the predicted vaccination uptake from 50% in a mild pandemic to 88% in a severe pandemic. Thus, people are more likely to get vaccinated now than after a few years later.

Among all the factors included in this study only 4 factors were found to have a significant difference between the factors and perspectives on COVID-19 vaccination namely: Financial, Trust, Beliefs and Social. Two of these four factors namely Trust and Beliefs have been listed in an almost similar fashion in the study of Helps, Leask, Barclay, & Carter (2019) where refusal to vaccinate revolve around the themes of health professionals being dismissive, problems with the system, and personal and religious beliefs.

One of the determinants found to be significantly different between the pro-vaxxers and the anti-vaxxers is the financial factor. Disparities between opinions of both groups are evident, where those with positive perspectives towards COVID-19 vaccination do not see the cost of vaccines as a factor to their perspectives and willingness to be vaccinated. The opposite can be said to those anti-vaxxers who are more likely to allocate their finances for their basic necessities than spend their money for vaccination. Such findings can be

linked with the study of Malik, McFadden, Elharake and Omer (2020) where financially challenged communities, who are mostly affected by the pandemic, are reported to have a lower acceptance for the COVID-19 vaccine even if a vaccine is made available to them.

Another disparity in opinions between the two groups can be seen concerning trust on the authorities tasked to deal with vaccine manufacture and distribution, namely the government, pharmaceutical companies, and manufacturers. Participants who are considered Pro-vaxxers are more likely to trust while Anti-vaxxers have mistrust on the said authorities. This mistrust of the people on agencies concerning vaccines coincide with the results of Hornsey, Lovera and Diaz-Catalan (2020) where it showed that mistrust in authoritative and conventional medicine play large roles in vaccine hesitancy and uptake. Likewise, in a report by UNICEF (2019), the mistrust in authorities linked to the administration of vaccines led to an inefficient vaccination program of the Philippine government and vaccine hesitancy among the Filipino parents.

Pro-vaxxers are found to strongly disagree with the belief that vaccines are unnecessary and risky while Anti-vaxxers only disagree. A significant difference between the perspectives of the Anti-vaxxers and Pro-vaxxers on their beliefs exists, even if both disagree with the statements. This could mean that there are still a significant number of Anti-vaxxers who believe that vaccines cause more harm than good. This is in line with a similar study performed in Manila, Philippines by Gayados et al. (2020) wherein one of the reasons for the refusal of the Filipino parents to have their children vaccinated is because of their belief that the vaccines are not effective and safe as well as having doubts towards the necessity of vaccination. The great effect of personal beliefs, philosophical reason, and personal opinions on the perspectives of Anti-vaxxers regarding vaccination are also listed in the studies of Barua et al. (2020) and Bohanon and McKee (2016).

Another notable finding in this study is the disparity between the Anti-vaxxers and the Pro-vaxxers as regards to the social factor. Family and friends of Pro-vaxxers are more likely to have positive perspectives on vaccination while family and friends of Anti-vaxxers do not. The influence of social media also plays a factor, wherein Anti-vaxxers are more likely to be affected by social media while Pro-vaxxers do not. These findings affirm the study of Smith (2014), Yaqub, Castle-Clarke et al. (2014) and Determann, Korfrage (2014) where results showed that opinions of family, friends, and colleagues shape the resulting perspectives on vaccination. Meanwhile, the study by Featherstone, Bell and Ruiz (2019) mentioned that those who are likely to believe conspiracy theories have a greater reliance on social media which extends on the topic of false claims about vaccination. The study of Barua et al. (2020) also mentioned that the information that can be acquired from social media greatly affects the perspective of each individual on vaccination.

On the other hand, there is no significant difference between the opinions of Anti-vaxxers and Pro-vaxxers as regards to the factors safety and effectivity, and experiences. Generally, both groups agree that vaccines are effective, should have a satisfying effectivity rate, and dedicated years for improvement. This result of the study contradicts the results of previous studies like Helps et al. (2019) and Bohanon and McKee (2016) which listed safety concerns as one of the reasons for poor vaccination uptake and vaccine refusal. On the other hand, both groups do not have disagreeable experiences with needles, vaccination, and hospitals that affect their perspectives on COVID-19 vaccination. This finding is contrary to the results of Hornsey, Harris, and Fielding (2018) where it shows that anti-vaccination attitudes were observed with individuals with high levels of disgust and fear towards blood and needles.

5. Conclusion

A majority of the respondents show positive perspectives towards vaccination and high willingness to get vaccinated with COVID-19 Vaccine. However, it is important to monitor the vaccination uptake in relation to their perspectives and willingness to be vaccinated, since positive perceptions and willingness to take the vaccine do not always translate to their behavior.

Pro-vaxxers have higher levels of trust in the organizations behind vaccine production and distribution as compared to the Anti-vaxxers. Pro-vaxxers also have social circles that are more likely to have positive perspectives on vaccination than Anti-vaxxers. It is recommended that organizations should devise plans that would boost the confidence of the population towards vaccination, such as public materials like posters, videos, and other forms of media that would engage the people. With social media being the easiest form of communication, organizations may use this power to positively boost public opinion.

For belief and financial factors, Anti-vaxxers agree that it affects their vaccination perspectives, while it does not affect Pro-vaxxers that much. Thus, the researchers propose that healthcare workers or institutions engage in active participation in correcting misinformed beliefs of the people especially in social media so as to improve the overall perspectives of the public towards vaccination. Furthermore, with financial factors also being a factor that affect the Anti-vaxxers' perspectives, it is recommended that vaccines should be made more available and affordable for the mass as this would encourage more people to avail them and ultimately promote herd immunity.

The factors Safety and Effectivity, and Experiences have no significant difference between Pro-vaxxers and Anti-vaxxers. Both groups agree that Safety and Effectivity affect their vaccination perspectives while Experiences are less likely to affect it.

6. Recommendations

Based on the findings and conclusions presented, the researchers recommend that a larger number of respondents be involved in the study. Since the survey was disseminated only using Google sheets and only those who have access to the internet can answer the survey, the respondents are not enough to obtain a larger sample size that is more representative of a larger population.

In addition, the researchers recommend that more respondents from the older age group be involved in the study. Most of the respondents who answered the survey belong to the younger population, which could mean that the perspectives of the older population are not properly represented. Since most of the older population have less accessibility to technologies and internet connectivity, it is suggested that other means of data collection be executed.

Similarly, the researchers recommend that an equal number of respondents for both females and males be involved in the study. Since the survey contains a majority of female respondents than male respondents, there is not enough data to analyze the difference between the female and male respondents' perspectives towards vaccination. As a result, the researchers suggest that the demographic profiles of the respondents in relation to their perspectives towards COVID-19 vaccination be included in the future study.

Additionally, the researchers also recommend that a larger population of Anti-vaxxers be included in the survey since the investigators were only able to receive responses mostly from Pro-vaxxers. By considering more respondents from this population, a deeper understanding may be established and ultimately allow the production of more profound results and recommendations as well as to address the factors causing poor vaccination uptake among people.

The researchers also recommend that a comparative and or a follow-up study be made because at the time of the conception and execution of this study, vaccines were still not available for distribution. However, during the conclusion of this study, distribution of vaccines has started which could cause the financial factor to be irrelevant. With that, it is also advised that the financial factors be excluded from the study as it is now known that vaccines in the Philippines are to be distributed without charge. Finally, the researchers highly encourage the exploration and consideration of other factors that may possibly influence the overall behavior and insight of the population as regards to the vaccines.

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