Crisis of Confidence: Willingness of the Filipinos within Metro Manila to Undergo COVID-19 Vaccination in 2020-2021

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Abstract: - In the presence of a pandemic, vaccines are important to help eliminate the virus and immunize the population. Despite its given benefits, there are still those who are reluctant to receive the vaccination. This study explored the effects of the vaccine scare due to the Dengvaxia vaccination and the acknowledgement on the presence of the COVID-19 pandemic to the willingness of the Filipinos, ages 18 to 59, within Metro Manila to receive the COVID-19 vaccination. A descriptive correlational research design was done to determine the relationship between the variables. An online survey was conducted consisting of both close-ended and open-ended questions. A total of 399 respondents were able to give their answers regarding their baseline knowledge on vaccines, their willingness towards vaccine due to the Dengvaxia vaccination, and the acknowledgement of the presence of a pandemic, the acceptability towards the COVID-19 vaccine, and their reasons to receive the COVID-19 vaccine. Majority of the respondents were willing to receive COVID-19 vaccinations, and there was a correlation observed between the vaccine scare and the willingness status of the respondents to receive the COVID-19 vaccination. Most of the respondents' reason to receive the vaccine focused more on their protection against the virus. For those who were not willing to receive the vaccine, their reasons include the overall safety of the vaccine itself. Furthermore, the reasons of unsure respondents leaned towards an unwilling status. Even though a greater number of respondents were willing to receive the vaccine, there were still a number of those who were unwilling and unsure which is concerning. With this knowledge, interventions can be done to further encourage the acceptability towards vaccination.

Key Words: — ***COVID-19, Vaccine Scare, Pandemic, Filipinos.***

I. INTRODUCTION

Coronavirus Disease 2019 (COVID-19) is an infectious disease that is easily transmitted through direct contact via respiratory droplets and indirect contact via touching objects and surfaces contaminated by those who are infected (World Health Organization, 2020). The Philippines is one of the many countries that are unable to control the rising number of COVID-19 infected individuals despite the government's implementation of control measures. Because the country was unable to invest in health facilities before the pandemic, the enforced administrative controls and the wearing of personal protective equipment are not enough to protect the people against the disease. Eliminating the virus is vital in eradicating the infectious disease, and this can only be done through immunization. However, controversies in relation to immunization have sparked in the Philippines which caused misconception on vaccines among Filipinos. Due to the dengue outbreak in 2016, the Philippine government implemented large-scale school-based vaccination campaigns as soon as the world's first dengue vaccine, Dengvaxia, was developed by one of the largest pharmaceutical companies. In December 2017, the company released an analysis stating that Dengvaxia may pose a heightened risk of a severe form of the disease to individuals with no history of dengue (Lasco & Yu, 2021). This has created an adverse reaction and a general misconception

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regarding immunizations among the Filipinos wherein many of the parents have refused to let their children get vaccinated even against vaccine-preventable diseases that are not related to dengue. Fatima and Syed (2018) referred to this phenomenon as "Vaccine Hesitancy" which is explained as the disinclination and reluctance to avail safe vaccines regardless of the accessible vaccination services.

A. Objectives of the study

The study aims to determine the effect of the vaccine scare brought by Dengvaxia and the acknowledgement on the presence of COVID-19 pandemic to the acceptability and willingness of the Filipinos, ages 18 to 59, in Metro Manila to receive the available COVID-19 vaccines. Specifically, the researchers plan to achieve the following:

- To measure the baseline knowledge of the Filipinos within Metro Manila regarding vaccination, its benefits, risks, and effectiveness.
- To determine the acknowledgement on the presence of the COVID-19 pandemic and the presence of vaccine scare due to the Dengvaxia vaccination.
- To determine the willingness of Filipinos within Metro Manila in receiving COVID-19 vaccination.
- To assess the correlation between the presence of vaccine scare due to the Dengvaxia vaccination and the acknowledgement on the presence of the COVID-19 pandemic to the willingness of Filipinos within Metro Manila in receiving COVID-19 vaccination.
- To understand the major reasons behind the decision and willingness of the Filipinos within Metro Manila in receiving the COVID-19 vaccine.
- To explore the other specific factors that may influence the Filipinos within Metro Manila to receive COVID-19 vaccination.

B. Problem statement

Amid COVID-19 pandemic, the transmission of the SARS-CoV-2 virus is only controlled through the implementation of administrative controls. The most effective way to eliminate the virus is through the global distribution of vaccines. The controversy of the Dengvaxia has led to Filipinos' hesitancy on receiving vaccinations. This has resulted in the increase of vaccine preventable diseases in the Philippines. The mass immunization of the COVID-19 vaccines solely depends on the willingness of the individuals to give their consent to undergo the said vaccination. This study aims to investigate the potential effect of the vaccine scare caused by Dengvaxia and the acknowledgement of the presence of COVID-19 pandemic to the willingness of the Filipinos, ages 18 to 59, in Metro Manila to undergo COVID-19 vaccination. Specifically, the study aims to address the following research question:

- What is the baseline knowledge of the Filipinos within Metro Manila regarding vaccination including its benefits, risks, and effectiveness?
- What is the COVID-19 pandemic acknowledgement status and the effect of the Dengvaxia vaccination to the presence of vaccine scare of the Filipinos within Metro Manila?
- What is the willingness status of the Filipinos within Metro Manila in receiving COVID-19 vaccination?
- What is the significant correlation between the effect of Dengvaxia vaccine scare and the acknowledgment on the presence of the pandemic to the willingness of Filipinos within Metro Manila to have the COVID-19 vaccination?
- What are the major reasons behind the decision and willingness of the Filipinos within Metro Manila in undergoing COVID-19 vaccination?
- What are the other specific factors that may contribute to the willingness of the Filipinos within Metro Manila to receive COVID-19 vaccination?

C. Hypotheses of the Study

Ho: There is no correlation between the vaccine scare due to the Dengvaxia vaccination and the willingness of Filipinos to receive COVID-19 vaccination

Ho: There is no correlation between the acknowledgment on the presence of the COVID-19 pandemic and the willingness of Filipinos to receive COVID-19 vaccination

D. Scope and limitations/Research impediments

The determination of the respondents' willingness was based on quantitative factors which involved the effect of vaccine scare due to Dengvaxia vaccination and the acknowledgement of COVID-19 pandemic as a serious disease. The supporting open-ended questions only encompassed the respondents' reasons behind their willingness status including their other specific reasons and perceptions. Only the responses with the

highest frequencies were considered. The perception of the respondents on the factors particularly pertaining to the type of vaccine was not included in the study. It only focused on the COVID-19 vaccine which is provided by the government and available in the market. No specific brands of COVID-19 vaccine were given focus and mentioned in the study. Other immunizations against vaccine-preventable diseases such as polio, chickenpox, tetanus, etc. we're not included. The aforementioned vaccine scare only pertained to the consequent aftermath of the previous vaccination program of the Department of Health (DOH) regarding the use of Dengvaxia. The data gathering was done before the COVID-19 vaccine was distributed in the country. The study was conducted within the span of two semesters.

E. Significance of the study

The findings of this study will be beneficial to the following:
Students will benefit by expanding their knowledge on the perspective of the Filipinos on vaccine-preventable diseases and identifying ways on how to educate fellow Filipinos on the matter.
Healthcare providers will understand the perspective of Filipinos whether they approve or not of the novel vaccine in line with the effects of the previous vaccine scare on their decision. This study could help them educate their patients about vaccines that are available in distribution and the importance of vaccination as a preventive measure against COVID-19.
The Department of Health (DOH) will benefit by knowing the viewpoint of the Filipinos on the available COVID-19 vaccine and the repercussions brought by the previous vaccine scare due to the Dengvaxia vaccination, so they can formulate a strategy on how to encourage Filipinos on receiving COVID-19 vaccination.
Future Researchers will have a basis on what the Filipinos think about the COVID-19 vaccination and the influence of the previous vaccine scare if they consider expanding this research further.

II. Review Of Related Literature

Factors associated with Filipinos' willingness to immunization:

In the study of Ulep and Uy (2019), it was stated that ever since the Expanded Program on Immunization (EPI) has been introduced by WHO, this has become one of the major public health programs by DOH in the Philippines with its goal of increasing immunization coverage in the country. Additionally, the program aims to provide immediate access to vaccines against common vaccine preventable diseases among Filipino families, especially infants. According to Republic Act no. 10152 of 2011, children under the age of five are required to be given immunization against 11 diseases: Tuberculosis, Hepatitis B, Diphtheria, tetanus and pertussis, Haemophilus influenzae type B, Meningitis, Poliomyelitis, Pneumococcal infections, Measles, mumps, and rubella which can be acquired in private and public health facilities. Despite the mandated law, under vaccination remains to be a problem in the Philippines. According to Migriño et al. (2020), one contributing factor would be the presence of negative information in mass media and social media platforms which is highly related to the vaccine scare incident brought by Dengvaxia. Additionally, vaccine safety concerns including its associated "side effects" beliefs and circumstantial life events surrounding vaccination have an impact in the Filipinos' willingness to receive immunization. The study also mentioned how significant the role of health workers is in terms of advocating vaccination in the public.

Lack of knowledge and proper information regarding available immunizations are also contributing factors. Based on the research conducted by Bondy, Thind, Koval, and Speechley (2009), lack of vaccination is due to inadequate amount of medical equipment and insufficient awareness of health-related information among mothers in the poverty line especially those who had little formal education, who fail to have ideal antenatal visits, and who have several children.

Acknowledgement on the Presence of the Pandemic:

A cross-sectional study was done by Alahdal et al. (2020) that determined the participant's awareness, attitude, and practice in the COVID-19 pandemic. The results of the study have presented 58% moderate level of awareness, 95% high attitude, and 81% adequate practice regarding COVID-19 among all of the respondents. There is also a high positive correlation between awareness to attitude and attitude to practice. The level of awareness has been shown to be higher in males compared to females even though females were shown to have better practices compared to males against COVID-19. The study conducted by Ilesanmi and Afolabi (2020) has shown perception and practices of an urban community in the COVID-19 pandemic. The findings have shown that among the different

practices, going to the hospital and contacting the COVID-19 hotline are the most common for those who experience COVID-19 symptoms. Only 26% of the respondents believed that they could contract COVID-19 while 12% assumed that the event was overstated. The most frequent practices towards the prevention of COVID-19 are the use of face masks and social distancing. The perception of the respondents that they could contract COVID-19 has a low correlation towards their practices in preventing COVID-19.

Assessment of Vaccine Hesitancy:

A study conducted by Goss et al. (2019) has assessed the knowledge, attitudes, and beliefs of parents towards influenza vaccination. This has been done to understand the factors affecting the parent's decision to vaccinate their child and to create an effective promotion rather than the traditional promotion on vaccination in order to increase their inclination towards vaccination. A change has been shown in the perception of vaccine safety and efficacy among the participants but their inclination to vaccinate is still low. Results have revealed that parents who decided not to vaccinate their children have had doubts on the vaccine effectiveness and its side effects. They also consider vaccination as an inconvenience and believe it to be unnecessary. Parents that have decided to vaccinate their children possess knowledge that vaccines are effective against Influenza, have already received the Influenza vaccine as an adult, and have an understanding of the importance of the prevention of the transmission of influenza towards high-risk populations.

A. Conceptual Framework

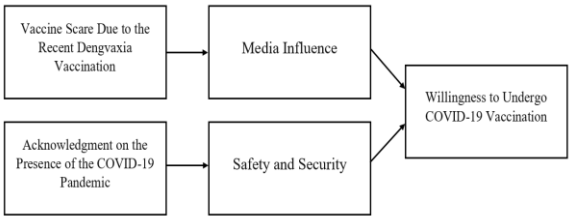

Fig.1. Factors that affect the willingness to undergo COVID-19 vaccination

The willingness and acceptability of individuals to undergo COVID-19 vaccination are mainly influenced by the two main independent variables that were used in the study. The first variable is vaccine scare which was due to the Dengvaxia incident in the Philippines. Its exposure to the media lead to doubts among people to undergo vaccination and may result in skepticism as new vaccines are presented such as the COVID-19 vaccine. The second variable is the acknowledgement of the presence of the pandemic due to the spread of COVID-19 infection and its seriousness. As there is still no known cure to this disease and the only way to provide safety and security would be through immunization.

III. METHODOLOGY

A. Research Design

A quantitative method was used in the study which allows to measure and analyze the collected data through surveys. It focuses on numeric and unchanging data that was analyzed through descriptive study wherein only the association between variables were established (University of Southern California, 2021). Descriptive correlational research was used in the evaluation and measurement of willingness of the Filipinos in Metro Manila to undergo COVID-19 vaccination. Their willingness was correlated with the presence of vaccine scare brought by the Dengvaxia vaccination and their acknowledgement of the COVID-19 pandemic. The possible causal relationship between the vaccine scare from Dengvaxia, the acknowledgement of the presence of the pandemic, and the willingness of the Filipinos to vaccinate.

The descriptive research design allowed the measurement of the baseline knowledge of the participants regarding vaccination which includes its benefits, risks, and effectiveness. Open-ended questions were used to supplement the answers of the respondents from the previous quantitative questions and these responses were processed quantitatively through coding in order to obtain the main points and recurring answers (Couper and Singer, 2011). These questions were used to assess the main reasons and other underlying factors that influenced the willingness of the Filipinos to undergo vaccination based on its correlation with the current pandemic and vaccine scare. It also assessed the factors that influenced the willingness of the respondents to receive to COVID-19 vaccine and their reasons behind their decision in receiving the said vaccine.

Subjects and Study Site:

An online assessment was used to obtain data for the survey and the minimum number of participants was set to 385 which was determined by the Raosoft Sample Size Calculator using a

population of 9,661,877 which is the number of residents in Metro Manila ranging from ages 18 to 59 years old. The sampling technique used was the Exponential Non-Discriminative Snowball Sampling since there was difficulty in reaching the target population and it gathered a total of 399 respondents. It was a non-probability sampling technique where the existing subjects provided multiple referrals to recruit (Etikan et al., 2015). Participants involved in the study should be a resident of Metro Manila, legal age ranging from 18 to 59 years old, can read and write, and can understand either English or Filipino.

Data Measure/Instrumentation:

The questionnaire for this survey was adapted from previously published survey questionnaires and had four parts. Part 1 was used to determine how much the participant knows about vaccination. This was adapted from the study of Goss et al. (2020) entitled "An assessment of parental knowledge, attitudes, and beliefs regarding influenza vaccination". Part 2 contained questions that determine the presence of the vaccine scare due to the recent Dengvaxia vaccination, which included reasons on why the respondent refused to vaccinate. This also contained questions that determined their acknowledgement of the presence of the COVID-19 pandemic through questions about their perception on the seriousness of the COVID-19 disease. This survey was adapted from the study of Miko et al. (2019) entitled "Qualitative Assessment of Vaccine Hesitancy in Romania" and from the study of Blyth et al. (2014) regarding "The impact of pandemic A(H1N1)pdm09 influenza and vaccine-associated adverse events on parental attitudes and influenza vaccine uptake in young children". Part 3 was also adapted from the study by Blyth et al. (2014) and this determined the willingness status of the respondent to receive COVID-19 vaccination which contained questions on how the respondent understands COVID-19 and if vaccination was needed for the virus. Part 4 was also adapted from the previously mentioned study by Miko et al. (2014) and had open-ended questionnaires about the major reasons behind their decision to receive COVID-19 vaccine and other specific factors that may influence their willingness to be vaccinated with the COVID-19 vaccine. The questions covered the respondent's point of view with regard to their main reason behind receiving the COVID-19 vaccine and their perspective regarding COVID-19 immunization. This also included their worries about the COVID-19 vaccine and their personal opinion on why other people refused to be immunized by the said vaccine.

Data Gathering Procedure:

At the beginning of the data collection, the respondents were given consent forms with an overview explanation of the study. Participants who gave their consent could proceed with the survey and answer the given questions. To supplement the survey, open-ended questions were given at the end of the form that asked about the respondents' perspectives about COVID-19 vaccination whether they agree or disagree with it

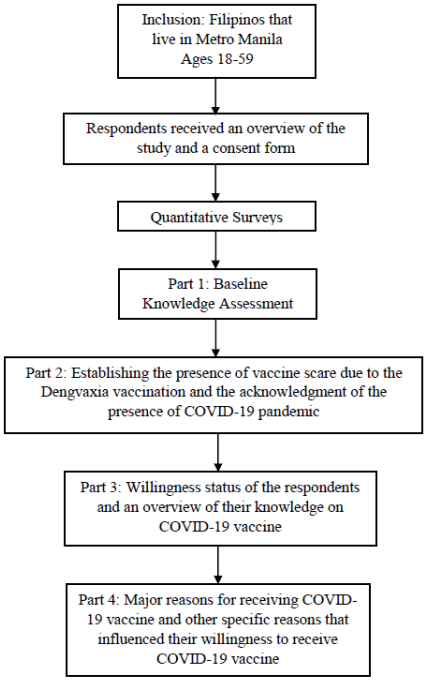

Fig.2. Data Collection Procedure

Ethical Considerations:

Before the study was conducted, an Ethics Review Board (ERB) approval was secured to ensure that the study was ethically acceptable. Informed consent was obtained first which provides the overview of the study that includes the complete purpose of the research, methodologies, and the possible outcomes of the study prior to the data collection. In addition, the respondents were provided with the right to withdraw at any stage of the study. Their voluntary choices and decisions regarding the participation in the study must be respected and

must be free from being pressured and coerced by the researchers (AIDS Vaccine Advocacy Coalition, 2020). Furthermore, they have the right not to be known. They were provided by the option to not reveal their identity and participant codes were used as their identifier during the presentation of data. Overall, there were no identified risks and adverse effects to the participants during the conduct of this study. The participants were all treated as equal and their individual opinion and responses were respected. Also, there was no manipulation or deception and privacy invasion that occurred to ensure confidentiality and anonymity.

Data Analysis:

The researchers used the R software to analyze the variables by using the descriptive and correlational statistics to simplify the gathered data in a reasonable manner. Kruskal-Wallis H test also known as one-way ANOVA on ranks is a rank-based nonparametric test that was utilized to determine if there were any significant differences between the two or more groups of an independent variable on a continuous or ordinal dependent variables, allowing the comparison of more than two independent groups. (Laerd Statistics, 2018). This was followed by Dunn's test which is a procedure following rejection of a Kruskal–Wallis test. This is a non-parametric pairwise multiple comparisons procedure based on rank sums, often used as a post hoc analysis (Cross Validated, 2015). Responses from the open-ended questions were coded and analyzed using MAXQDA 2020 since this software allows to arrange, organize, and analyze a large amount of information easily and efficiently. Furthermore, it encouraged the administration of the resulting interpretations and evaluations (MAXQDA, 2020).

IV. RESULTS

A. Demographic Profile of the Respondents

Table.1. Demographic Profile of the Respondents

Sex	**f**	**%**
Female	252	63.16
Male	147	36.84
City/Address	**f**	**%**
Caloocan	19	4.76
Las Piñas	8	2.01
Makati	9	2.26
Malabon	4	1.00
Mandaluyong	16	4.01
Manila	92	23.06
Marikina	40	10.03
Muntinlupa	13	3.26
Navotas	3	0.75
Parañaque	13	3.26
Pasay	12	3.01
Pasig	49	12.2
Quezon City	104	26.07
San Juan	1	0.25
Taguig	10	2.51
Valenzuela	6	1.50
Age	**f**	**%**
≤ 20	110	27.57
21 - 30	198	49.62
31 - 40	28	7.02
41 - 50	42	10.53
≥ 51	21	5.26

Table.1. presented that the majority of the respondents were female which was 63.16%. Most of the respondents were residing in Quezon City followed by the City of Manila, with 26.07% and 23.06% of the total respondents, respectively.

B. Baseline Knowledge of the Respondents Regarding Vaccination

Table.2. Baseline Knowledge Level Regarding Vaccination

Baseline Knowledge Level	**f**	**%**
Good/High (71 to 100%)	334	83.71
Intermediate (51 to 70%)	58	14.54
Poor (0 to 50%)	7	1.75

Note: The baseline knowledge of the respondents were classified by their scores. Baseline Knowledge Scoring System adopted from the study of Yusof, Chia, and Hasni (2014).

Based on the results presented in Table 2, the majority have a good or high level of knowledge regarding vaccination, 83.71%. Meanwhile, 14.54% have an Intermediate level of knowledge and only 1.75% of the total respondents have a poor level of knowledge.

C. Presence of Vaccine Scare due to the Dengvaxia Vaccination among the Respondents

Table.3. Responses with Regard to Vaccine Scare due to the Dengvaxia Vaccination

Statement	**% Yes**	**% No**
1 – Do you believe that vaccines cannot protect you from serious diseases?	9.52	90.48
2 – Do you not like to have yourself vaccinated with all the recommended vaccines?	21.55	78.45
3 – Have you ever been reluctant or hesitant to get a vaccination?	55.14	44.86
4 – Have you ever refused a vaccination?(after considering reasons related to vaccine scare).	25.81	74.19
Reasons for Vaccine Refusal in Statement 4	**% Yes**	**% No**
1 - Did not refuse	0.00	100.00
2 – Did not think it was needed	21.68	78.32
3 – Did not know where to get vaccination	7.69	92.31
4 – Did not know where to get good/reliable information	32.17	67.83
5 – Heard or read negative media	40.56	59.44
6 – Did not think the vaccine was effective	16.78	83.22
7 – Did not think the vaccine was safe/concerned about the side effects	49.65	50.35
8 – Someone else told me that the vaccine was not safe	23.08	76.92
9 – Had a bad experience with the previous vaccinator/health clinic	3.50	96.50
10 – Had a bad experience or reaction with the previous vaccination	6.99	93.01
11 – Fear of Needles	16.78	83.22
12 – Not possible to leave other work (at home or other)	6.99	93.01
13 – Religious reasons	1.40	98.60
14 – Other beliefs/traditional medicine	2.10	97.90
15 – Others	4.90	95.10
Vaccine Scare Scores	**f**	**%**
0	144	36.09
1	128	32.08
2	76	19.05
3	37	9.27
4	14	3.51

Table above showed the responses with regard to vaccine scare due to Dengvaxia vaccination. The highest response that indicates vaccine scare was the reluctance or hesitancy to get vaccination (55.14%), followed by vaccine refusal related to vaccine scare (25.81%).

This presented the percentage of respondents who refused vaccination per reason. The highest percentage from those who refused vaccination was 49.65% which went to Reason 7, “Did

not think the vaccine was safe/concerned about the side effects". It was then followed by Reason 5, "Heard or read negative media", with 40.56% and followed by Reason 4, "Did not know where to get good/reliable information", at 32.17%. Only reasons 5, 6, 7 8, and 10 were the vaccine refusal reasons considered as vaccine scare.

The scores of all the respondents regarding the presence of vaccine scare due to the Dengvaxia vaccination. A point was given to respondents who agreed to statements since their responses were categorized as a vaccine scare due to the Dengvaxia vaccination. A percentage of 36.09% of the respondents had scores equal to 0, followed by 32.08% that had scores equal to 1, 19.05% that had scores equal to 3, followed by those who had scores equal to 3 and 4, 9.27% and 3.51% of the respondents respectively.

D. Acknowledgement of the Respondents on the Presence of the COVID-19 Pandemic

Table.4. Acknowledgement of the Respondents on the Presence of the COVID-19 Pandemic

Statement	**% Acknow-ledging**	**% Not Acknow-ledging**
1 – COVID-19 is a serious disease.	81.45	18.55
2 – COVID-19 can put people in the hospital.	95.49	4.51
3 – COVID-19 can kill vulnerable individuals (e.g. elderly, young, immunocompromised individuals).	96.24	3.76
Pandemic Score	**f**	**%**
0	1	0.25
1	14	3.51
2	76	19.05
3	308	77.19

Based on table 4, the lowest acknowledgment among the three questions was Question 1 falling below 85% as compared to the other two questions where more than 95% of the respondents were acknowledging.

This showed the scores of all the respondents regarding their acknowledgment on the presence of the pandemic including their perception on COVID-19 as a serious disease. A point was given per question to the respondents if their response acknowledged the presence of the pandemic including their perception on COVID-19 as a serious disease. Majority (77.19%) of the respondents have a score of 3.

E. Willingness Status of the Respondents

Table.5. Willingness Status of Respondents to Receive COVID-19 Vaccination

Willingness	**f**	**%**
Willing to be vaccinated	256	64.16
Unsure	115	28.82
Unwilling to be vaccinated	28	7.02
Statements Regarding the Knowledge on COVID-19 Vaccine Leaning to their Willingness Status	**% Leaning to Willingness**	**% Leaning to Unwillingness**
1 – COVID-19 vaccine is safe.	43.36	56.64
2 – COVID-19 vaccine protects children against the SARS-CoV-2 infection.	49.12	50.88
3 – You can catch the COVID-19 from the vaccine.	65.41	34.59
4 – I am worried about side effects of the COVID-19 vaccine.	20.80	79.20
5 – It is better to have natural immunity against COVID-19.	45.61	54.39
6 – COVID-19 vaccine will overload my immune system.	58.40	41.60

7 – Individuals who have comorbidity diseases (e.g. asthma) should get a COVID-19 vaccine.	48.37	51.63
8 – Individuals who have a chronic disease should get a COVID-19 vaccine.	49.87	50.13
9 – Healthy individuals should get a COVID-19 vaccine.	76.94	23.06
10 – It is inconvenient to get a COVID-19 vaccine.	56.39	43.61
11 – Vaccines being free is important.	87.22	12.78
12 – I don't believe that I should have any vaccinations.	78.20	21.80

The table above showed that more than half of the respondents (64.16%) were willing to be vaccinated. There were also 28.82% unsure respondents and 7.02% that were unwilling to be vaccinated. It also presented the overview of the respondents' knowledge on COVID-19 vaccine leaning to their willingness status. Agreeing to statements 1, 2, 7, 8, 9, and 11 including those who disagreed to statements 3, 4, 5, 6, and 12 were leaning to willingness. Results acquired otherwise were leaning to unwillingness. High percentages of leaning to willingness were observed on Statements 11, 12, 9, and 3, with 87.22%, 78.20%, 76.94%, and 65.41% of the total respondents, respectively. On the other hand, the highest percentage of leaning to unwillingness was observed on Statement 4 with 79.20% of the total respondents.

F. Correlation Studies

Table.6. Correlation of Vaccine Scare to the Willingness Status of the Respondents

Willingness Status	**Mean Vaccine Scare Score**	**Kruskal Wallis Test**	
Willing to be vaccinated	0.6835938	**Test Statistic**	**P-value**
Unsure	1.7826087	113.36	<0.0001
Unwilling to be vaccinated	2.3928571		
Dunn's Test			
		Test Statistic	**P-value**
Unsure – Unwilling to be Vaccinated		-1.690003	0.2731
Unsure – Willing to be Vaccinated		9.155024	<0.0001
Unwilling to be vaccinated – Willing to be Vaccinated		6.952416	<0.0001

Table.6. showed the correlation of vaccine scare due to Dengvaxia vaccination to the willingness status of the respondents by utilizing Kruskal Wallis Test. The results presented a p-value of <0.0001 ($p < 0.05$); thus, this indicates that at 0.05 level of significance, there was a sufficient evidence to conclude that there were differences on the vaccine scare scores depending on the Willingness Status of the respondents

A multiple comparison was performed by utilizing Dunn's test to assess which of the following Vaccine Scare Score have differences to one another. To compensate for the fact that multiple tests were performed simultaneously, the p-values were adjusted with the Bonferroni method. At 0.05 level of significance, there is sufficient evidence to conclude that there was a statistically significant difference on the vaccine scare score of those that are unsure to be vaccinated as compared to the scores of those that are willing to be vaccinated ($p < 0.05$). Similarly, there was sufficient evidence to conclude that there was a statistically significant difference on the vaccine scare score of those that are unwilling to be vaccinated as compared to the scores of those that are willing to be vaccinated ($p < 0.05$).

However, there was no sufficient evidence to conclude that there was a statistically significant difference on the vaccine scare score of those that are unsure to be vaccinated as compared to the scores of those that are unwilling to be vaccinated ($p > 0.05$).

Table.7. Correlation of the Presence of the Pandemic to the Willingness Status of the Respondents

Willingness Status	**Mean Pandemic Score**	**Kruskal Wallis Test**	
Willing to be vaccinated	2.792969	**Test Statistic**	**p-value**
Unsure	2.626087	5.8056	0.05487
Unwilling to be vaccinated	2.607143		

This table presented the Mean Pandemic Score of the respondents based on the Willingness Status of the respondents. The mean score of the respondents was around two regardless of their Willingness Status. It also presented the correlation of the presence of the pandemic to the willingness status of the respondents based on the results of the Kruskal Wallis test. The resulting p-value of the Kruskal Wallis test was 0.05487 ($p \geq 0.05$). At 0.05 level of significance, there was no sufficient evidence to conclude that there were differences on the pandemic scores depending on the willingness status of the respondents. There was no correlation between the presence of the pandemic to the willingness status of the respondents ($p \geq 0.05$).

V. Discussion

A. Baseline Knowledge of the Filipinos within Metro Manila on Vaccination, its Benefits, Risks, and Effectiveness

Majority of the respondents (83.71%) were aware and had knowledge regarding vaccination. The results indicated that the majority of the respondents know the benefits and risks of vaccination among individuals which means that participants would be more willing to be vaccinated since having more knowledge of immunization has a higher intent of vaccination (Gross, Tran, Sutherland, Castagno, & Amdur, 2014).

B. Presence of Vaccine Scare due to the Dengvaxia Vaccination among the Respondents

The highest percentage that indicates vaccine scare, in the post-Dengvaxia era, was elicited from the reluctance or hesitance of respondents to receive any vaccination (55.14%) while vaccine refusal comes in second; however, there was a higher number of respondents who did not refuse vaccination before. More than half of the respondents had accumulated a vaccine scare score from 1 to 4 points, indicating that there was a presence of vaccine scare among the respondents.

Among the reasons for vaccine refusal, only five were considered as vaccine scare. The following reasons were: “have heard or read negative media”, “did not think the vaccine was effective”, “did not think the vaccine was safe/concerned about the side effects”, “someone else had told the respondent that the vaccine was not safe”, and “had a bad experience or reaction with the previous vaccination”.

Negative media was considered to be an item that indicated vaccine scare because according to Gørtz, Brewer, Hansen, and Ejrnæset (2020), negative media coverage became the reason why there was a decline in the rate of HPV and MMR2 vaccination. Furthermore, according to Fatima and Syed (2018), negative media coverage and the vaccine safety of the dengvaxia vaccine might have a negative impact on other vaccination programs. A study by Larson, Hartigan-Go, and Figueiredo (2018) stated that Dengvaxia incidents contributed to the drop in the trust of the public in vaccine safety and effectiveness. Peer influence could also contribute to complacency to immunization according to a study by Wilder-Smith and Qureshi (2020). The decrease in vaccine coverage was correlated to the increased mistrust in the government while the increased vaccine hesitancy was the direct cause of the media coverage on Dengvaxia (Atassi et al., 2020). Two of these reasons indicated that vaccine scare had the highest percentage; thus, it could be acknowledged that there was a presence of vaccine scare among the respondents that had refused vaccination before.

However, there was a high number of respondents who refused a vaccination due to lack of good or reliable information, which was not considered as vaccine scare. According to the study of Miko et al. (2019), lack of information also arises as one of the common choices of the respondents who refuse to receive vaccinations yet their reasons were not categorized as vaccination scare.

C. Acknowledgement of the Respondents on the Presence of the COVID-19 Pandemic

Table 4 results showed that all of the questions presented high percentages on the acknowledgement of the presence of the

COVID-19 pandemic and perception on COVID-19 as a serious disease. However, some of the respondents did not acknowledge the seriousness of COVID-19 disease. In the study conducted by Blyth et al. (2014) about the impact of the Influenza pandemic, there were also a small percentage of the respondents that considered influenza as a mild disease only among those who have vaccinated, partially vaccinated, and vaccinated children. Among the total scores of the respondents, the majority of them acknowledged the presence of the pandemic and perceived COVID-19 as a serious disease. In a different study conducted by Ilesanmi and Afolabi (2020), the majority of the participants were aware that there is a possibility of contracting COVID-19, since results showed a high frequency of the participants going to the hospital and contacting the COVID-19 hotline when COVID-19 symptoms were experienced.

D. Willingness Status of the Respondents

Based on Table 5, more than half (64.16%) of the total respondents were willing to be vaccinated. This was almost on par with the willingness status of the residents in Japan with 65.7% willing to receive COVID-19 vaccination conducted by Yoda and Katsuyama (2021).

The researchers used a set of statements lifted from a study by Blyth et al. (2014) that helped determine the overview of the respondents' knowledge on COVID-19 vaccine leaning to their willingness status as seen in Table 5. In comparison with the research from Lazarus et al. (2020), 88.6% of the respondents from China have a positive attitude towards safe and effective COVID-19 vaccines.. Additionally, more than half of the respondents who were willing to be vaccinated have more knowledge and evidence-based perception towards COVID-19 vaccine. This is supported by a study made by Alqudeimat et al. (2021) which had similar findings with the participants who were willing to accept COVID-19 vaccine and exhibited less worries, in contrast with subjects who declined immunization against COVID-19.

On the other hand, 28.82% were unwilling to be vaccinated and 7.02% were unsure. It can be observed in Table 5 that the highest percentage under "Percent Leaning to Unwillingness" to receive COVID-19 vaccination was their worry on its side effects. This is followed by concerns in the safety of the vaccines with 56.64% of the total respondents which is correlated with the previous statement. Furthermore, this is also identified as a common factor in a study conducted by Alqudeimat et al. (2021) that contributed to the unwillingness of the respondents in receiving COVID-19 vaccination. In the aforementioned study, both fear of side effects and the safety of the COVID-19 vaccines contributed to the refusal of vaccination.

E. Correlation of the Effect of Vaccine Scare and the Acknowledgment on the Presence of Pandemic to the Willingness Status of Respondents

The correlation between the effect of Dengvaxia vaccine scare and willingness of Filipinos, ages 18 to 59, within Metro Manila to have the COVID-19 vaccination is observed in Table 6. It can be perceived that the resulting p-value was less than the level of significance; therefore, there was sufficient evidence to conclude that there were differences on the vaccine scare scores depending on their willingness status. This means that the null hypothesis was rejected, determining a correlation between vaccine scare and the willingness status of the respondents. Furthermore, a multiple comparisons test was done to identify which vaccine scare scores have differences to one another. Results showed that there was a statistically significant difference on the vaccine scores of those unsure to be vaccinated and willing to be vaccinated. Similar results were also perceived when in terms of unwilling to be vaccinated and willing to be vaccinated. This means that the respondents who were willing to be vaccinated are not hesitant to get immunization based on their vaccine scores. However, there was no sufficient evidence that can be observed on the vaccine scores of those unsure to be vaccinated and unwilling to be vaccinated. Thus, respondents who are unsure were more likely to be unwilling to be vaccinated and have the tendency to be hesitant in getting immunization.

According to Atassi et al. (2020), the inadequate advisory from the vaccine company and alleged Dengvaxia associated deaths among children had led to a commotion of public vaccination failure causing the suspension of the Dengvaxia campaign in the Philippines. This created fear in the public in terms of receiving vaccines which made an impact on the people's willingness to be vaccinated. This was made evident when vaccine coverage lowered and vaccine-preventable diseases increased after the Dengvaxia controversy. Similar findings can be found in the study of Migriño et al. (2020) wherein the Dengvaxia controversies which created a negative view because of media information mostly containing the adverse

events of the Dengvaxia campaign was associated with the decrease of vaccine confidence.

The correlation between the acknowledgment on the presence of the pandemic and the willingness of the Filipinos, ages 18 to 59, within Metro Manila to have the COVID-19 vaccination was seen in Table 7. The resulting p-value was greater than the level of significance; thus, there was no sufficient evidence to conclude that there were differences on the acknowledgement status of the respondents depending on their willingness status. The null hypothesis was not rejected; therefore, there was no correlation between the acknowledgment on the presence of the pandemic to the willingness status of the respondents ($p \geq 0.05$). This was further supported by the mean pandemic scores where their mean score was the same regardless of their willingness status. The correlation results implied that the awareness of the respondents on how serious or severe the COVID-19 pandemic was not associated with their decision to receive the COVID-19 vaccine.

According to the study of Blyth et al. (2014), the parents have a decreased concern with regard to influenza as a serious illness. Instead, the parents were much concerned about the adverse effects and safety of the influenza vaccine during the A(H1N1)pm09 influenza pandemic. Their decision for vaccinating their child was not much affected by the presence of the influenza pandemic but was more affected by their perception on the adverse effects of the vaccines and its safety. This coincided with the study of Arda et al. (2011) regarding the impact of the pandemic on influenza vaccination. The major determinant of the willingness of the respondents to receive the influenza vaccine was the possible side effects of the vaccine. There were still hesitations on receiving the vaccine despite the presence of the pandemic.

F. Major Reasons Behind the Decision and Willingness of the Respondents in Undergoing Covid-19 Vaccination

The results indicated that 257 of the respondents want to receive the COVID-19 vaccine. The major reasons for this were for them (1) to acquire immunity and protection, (2) to prevent the spread of the virus and reduce the further transmission of the disease, (3) for own safety, (4) to get back to normal life without the fear of getting ill, and (5) for their families' safety.

Majority of the willing respondents wanted to acquire immunity and protection (51.4%). According to the Centers for Disease Control and Prevention (2021), COVID-19 vaccines working with the immune system is a safer way to help build protection and a helpful tool to end the pandemic. Another reason was to prevent the spread of the virus and reduce the further transmission of the disease (16.7%). Based on the study of Juno and Wheatley (2021), evidence showed that not only do COVID-19 vaccines stop an individual from getting sick or substantially reduce symptoms, but they also substantially reduce the chance of transmitting the virus. Another factor that was answered by willing participants was for their own safety (14.0%) and getting back to normal life without the fear of getting ill (15.2%). Lastly, a small percentage (8.6%) of the participants responded that they want to receive the vaccine for their families' safety wherein one respondent said that "Close family members are high risk individuals and I don't want them to be put in danger." Many workers in frontline industries have family care obligations (Rho, Brown, & Fremstad, 2020). This was related to the study of McConnell (2020) which reported that Healthcare Workers who live with their families were more unwilling to work during the pandemic to protect their families in the thought of transmitting and infecting them with the virus.

The willingness of the respondents was supported by their answers on why the respondents think they should be immunized against COVID-19. One of the participants said that the reason for him to be vaccinated was "to help stimulate my immune response and strengthen my immune system to fight against immunize-able diseases". Other factors were to prevent and lessen the possibility of acquiring the virus and having the disease, for their safety and security, and to achieve herd immunity.

On the other hand, the results indicate that 27 of the respondents did not want to receive vaccination. Their major reasons were the following: (1) side effects and adverse reactions, (2) concern on efficacy rates of the vaccine, and (3) fast-track development of the vaccines.

The respondents' unwillingness was mainly because of the side effects and adverse reactions (37.0%) brought by the vaccines; thus, they were not willing to risk their lives regarding this thought. This was supported by the study by Goss et al. (2019) wherein the parents did not vaccinate their children due to their concerns on the side effects and efficacy of the vaccine. The same concerns were also elicited from the study of Blyth et al. (2014). Results showed that even though parents were less concerned about the severity of influenza, there were still concerns on the side effects and the safety of the vaccine. It was

stated in the study of Crouch and Nania (2021), some of the side effects of COVID-19 vaccine mentioned were pain and swelling in the injection site, fatigue, severe headache, abdominal pain, leg pain, shortness of breath, nauseas, swollen lymph nodes, chills, fever, rash or redness, and muscle or joint pain. Other reasons were their concern on the efficacy rates of the vaccine (22.2%) wherein the respondents were still unsure since they thought that the vaccines are yet to be proven safe and effective. Lastly, fast-track development of the vaccines wherein the respondents questioned clinical trials of the vaccine.

On the other hand, the results indicate that 114 of the respondents were unsure if they want to receive vaccination. Their major reasons were the following: (1) concern on side effects and adverse effects, (2) efficacy rates of the vaccines, and (3) concern on safety of vaccines.

Over 30.7% of the 114 respondents who were unsure whether to get vaccination or not because of their concern on the side effects and adverse effects, and other possible reactions that might take place, which were also the major reasons of those participants who are unwilling to get vaccinated. About 17.5% of them were unsure due to the efficacy rates of the vaccines. One respondent said that he is unsure if he would receive a vaccine recommended by the government "because of the lack of effectiveness and Phase 3 clinical trials". Another said that "there is no solid proof that the vaccine really works". This can be further strengthened by the study of Chou and Budenz (2020) in which sizeable proportion of the U.S population were hesitant on being vaccinated against COVID-19 due to the novelty of the disease and the unusually rapid speed of vaccine development resulting for some groups mistrust in science and health experts. Frequent side effects of the vaccine coming from fast-track development were seen as an indication of a haphazard vaccine development and may intensify the negative beliefs regarding vaccination (Saleska & Choi, 2021). There were still a small percentage of respondents (13.2%) who were concerned about the safety of the vaccines which made them unsure.

Based on the results, the reasons of the unsure respondents among 114 participants were leaning to their unwillingness towards vaccination. Only a small percentage was leaning to willingness. Thus, it can be concluded that the unsure respondents were more unwilling to receive COVID-19 vaccination. Based on the quantitative results regarding multiple comparisons between the respondents' vaccine scare scores and willingness status, the vaccine scare scores of the "unsure" group had no significant difference with the "unwilling" group. Thus, unsure respondents were more likely to be unwilling to be vaccinated and have the tendency to be reluctant and hesitant in getting any immunization due to the Dengvaxia vaccination. These quantitative results were parallel to the responses in the open-ended questions due to the similarity of reasons between the unwilling and unsure participants; therefore, a large percentage of the unsure respondents were also unwilling and hesitant to receive the COVID-19 vaccination in the post-Dengvaxia era.

G. Other Specific Factors that may contribute to the Willingness of the Respondents to Receive COVID-19 Vaccination

Other specific factors that may contribute to the willingness of the respondents to receive COVID-19 vaccination were derived from their worries and personal opinion on why others refused COVID-19 vaccination. More than half (60.7%) of the respondents had concerns on receiving COVID-19 vaccination. The notable answers of the respondents were vaccine brands and lack of political trust. The frequent answers from the item that asked the personal opinion of the respondents on why other people refuse to be vaccinated were the lack of knowledge, misinformation, spread of fake information, fear of vaccines, and financial burden.

The vaccine brand was one of the notable concerns of the respondents towards vaccination. An individual's preference on COVID-19 vaccines was strongly influenced by vaccines that were considered safe and effective (Borriello et al., 2021). However, in another study, it presented that the type of vaccine does not matter to the participants. There was no significant difference in their level of comfort whether the vaccine was attenuated, inactivated, subunit, RNA, and vector-based vaccines (Pogue et al., 2020).

The next concern was the lack of political trust among the respondents. One respondent said "I do not trust the government in disseminating the vaccine." Other responses include "If it is from the government? Is it safe?" and "fear of vaccines being politicized/catered to the self interest of the politicians". People were more likely to get vaccinated if they had more confidence in their government (Edwards et al., 2021) while vaccine hesitant people may be having a psychological

resistance to the government due to their distrust in the authoritative figures (Murphy et al. 2021).

Based on the personal opinion of the respondents on why other people refuse to be vaccinated, lack of information came as the second most frequent reason. According to a study by Marti et al. (2017), the lack of knowledge or information on vaccines and their benefits contributed to vaccine hesitancy. This was also reflected in a study conducted by Machekanyanga et al. (2017) wherein participants have shown vaccine hesitancy since they had limited knowledge and understanding about vaccines, but they would consider vaccination if they had received sufficient information about vaccines. In line with vaccine information, misinformation and the spread of fake information were frequently answered as well. Social media was the platform commonly used as sources of false information on measles vaccines which contributed to the high vaccine hesitancy of the respondents (Ashkenazi et al. 2020). Negative influences of known individuals using social media had also contributed to the spread of false information through fear-based statements on vaccination (Benecke & DeYoung, 2019). Fear of vaccines could be the result of the misinformation and the spread of fake information. According to McAteer et al. (2020), vaccine hesitant families had commonly responded that they fear that vaccines could be potentially linked to autism, learning difficulties, and chronic illnesses.

Financial burden was a notable response from the respondents. A study by Saied et al. (2021) had reported that fear of high financial costs was one of the barriers that caused vaccine hesitancy. Conversely, as stated by DOH (2021), the current vaccines in distribution do not have Certificates of Product Registration and selling of vaccines is not allowed. However, vaccines were still not distributed at the time of the data collection, thus the respondents were still not aware if the vaccines were for sale.

H. Limitations

There are some limitations with this study. One is the use of snowball sampling technique as the respondents per city is not well distributed; however, each of the cities were able to acquire enough respondents to serve as a representative. Second, the limitation of the correlation study between the presence of COVID-19 pandemic and the willingness status of the respondents is the use of only three statements to assess the acknowledgement of the seriousness of the COVID-19 disease and pandemic. However, it still covers the scope of perceiving COVID-19 as a serious disease and its accompanying risk of hospitalization and mortality to vulnerable individuals.

VI. CONCLUSION

The research findings of the study displayed a significant correlation between vaccine scare brought by Dengvaxia and the willingness of Filipinos, ages 18 to 59, within Metro Manila to receive the COVID-19 vaccination. On the other hand, the presence of the pandemic does not have an effect on respondents' willingness status. It can be noted that the respondents have awareness and knowledge on the importance of vaccination in the preventive process of vaccine-preventable diseases. Additionally, there was only a small percentage who failed to acknowledge the presence of COVID-19 pandemic. It was also notable that vaccine scare was present among the residents of Metro Manila that caused some of their past decisions of vaccine refusal. Based on the acquired responses in the open-ended questionnaire, the major reasons of the willing respondents in receiving COVID-19 vaccines were for them to acquire immunity and protection, to prevent the spread of the virus and reduce the further transmission of the disease, for their own safety, to go back to normal life without the fear of getting ill, and to receive the vaccine for their families' safety. Conversely, the unwilling respondents stated their refusal for immunization mainly because of the possible side effects and adverse reactions, the concerns on efficacy rates of the vaccine, and the fast-track development of the vaccines. The noticeable other specific factors that can have an effect on their willingness to receive immunization would be the brand of the vaccine, their lack of political trust, their lack of knowledge, being misinformed, presumed financial burden, and the spread of false information regarding vaccines.

Based on the obtained results, there were still respondents that did not have enough knowledge regarding the importance of vaccination in the preventive process of the vaccines. Additionally, there is still a small percentage that does not acknowledge the presence of the COVID-19 disease which makes it alarming and calls for action on both the government and healthcare workers to create an intervention plan in order to broaden the awareness of the people regarding vaccination and to encourage them to be vaccinated. The acquired information from the study has also provided an overview of the respondents' reasons behind the inclination or disinclination to accept vaccines. Therefore, this would help better understand

the respondents regarding their decision to receive or not to receive vaccines. Furthermore, interested researchers can find this paper beneficial in a way that the data can be used in creating a scheme to improve the vaccination trust of the people and in achieving herd immunity. The importance of vaccination and its vital role amid pandemic were highlighted through this research. The study was also meant to enlighten the respondents regarding accurate information and to veer away from the false information brought by the Dengvaxia phenomenon on immunization in order to completely garner cooperation from all people to reduce the disease burden of COVID-19 and to make the eradication of the disease possible.

REFERENCES

[1]. AIDS Vaccine Advocacy Coalition (AVAC). (2020). Principles of research ethics.

[2]. Alahdal, H., Basingab, F., & Alotaibi, R. (2020, June 17). An analytical study on the awareness, attitude and practice during the COVID-19 pandemic in Riyadh, Saudi Arabia. Journal of Infection and Public Health, 13(10), 1446-52.

[3]. Alqudeimat, Y., Alenezi, D., AlHajri, B., Alfouzan, H., Almokhaizeem, Z., Altamimi, S., Ziyab, A. (2021). Acceptance of a COVID-19 vaccine and its related determinants among the general adult population in kuwait. Medical Principles and Practice.

[4]. Arda, B., Durusoy, R., Yamazhan, T., et al. (2011). Did the pandemic have an impact on influenza vaccination attitude? A survey among health care workers. BMC Infectious Disease, 11(1), 87.

[5]. Ashkenazi, S., Livni, G., Klein, A., Kremer, N., Havlin, A., & Berkowitz, O. (2020).The relationship between parental source of information and knowledge about measles / measles vaccine and vaccine hesitancy. Vaccine, 38(46), 7292–98.

[6]. Atassi, K., Cifellli, N., Lemieux, A., Makki, L., Xu, J., & Lane, M. (2020). Did Dengvaxia-associated deaths result in an increase in vaccine hesitancy in the Philippines? McGill Journal of Global Health, 9(1), 114–134.

[7]. Benecke, O., & DeYoung, S. E. (2019). Anti-vaccine decision-making and measles resurgence in the United States. Global Pediatric Health, 6.

[8]. Blyth, C. C., Effler, P. V., Jacoby, P., Kelly, H., Regan, A., Richmond, P., . . . Thornton, P. (2014). The impact of pandemic A(H1N1)pdm09 influenza and vaccine-associated adverse events on parental attitudes and influenza vaccine uptake in young children. Vaccine, 32(32), 4075-81.

[9]. Bondy, J. N., Thind, A., Koval, J. J., & Speechley, K. N. (2009). Identifying the determinants of childhood immunization in the Philippines. Vaccine, 27(1).

[10]. Borriello, A., Master, D., Pellegrini, A., & Rose, J. M. (2021). Preferences for a COVID-19 vaccine in Australia. Vaccine, 39(3), 473–79.

[11]. Centers for Disease Control and Prevention. (2021, April 12). Benefits of getting a COVID-19 vaccine.

[12]. Chou, W.-Y. S., & Budenz, A. (2020). Considering emotion in COVID-19 vaccine communication: addressing vaccine hesitancy and fostering vaccine confidence. Health Communication, 35(14), 1718–1722.

[13]. Couper, M. and Singer, E. (2011). The Uses of Open-Ended Questions in Quantitative Surveys.

[14]. Crouch, M., & Nania, R. (2021). What are the side effects of COVID-19 vaccines?

[15]. Department of Health. (2021). Can private companies offer vaccines to dependents of their employees for a fee or should this be given for free as well?

[16]. Cross Validated. (2015). Dunn's-test.

[17]. Edwards, B., Biddle, N., Gray, M., & Sollis, K. (2021). COVID-19 vaccine hesitancy and resistance: Correlates in a nationally representative longitudinal survey of the Australian population. PLOS ONE, 16(3).

[18]. Etikan, I., Alkassim, R., & Abubakar, S. (2015). Comparison of snowball sampling and sequential sampling technique. Biometrics & Biostatistics International Journal, 3(1), 00055.

[19]. Fatima, K., & Syed, N. I. (2018). Dengvaxia controversy: Impact on vaccine hesitancy. Journal of Global Health, 8(2), 010312.

[20]. Gørtz, M., Brewer, N. T., Hansen, P. R., & Ejrnæs, M. (2020). The contagious nature of a vaccine scare: How the introduction of HPV vaccination lifted and eroded MMR vaccination in Denmark. Vaccine, 38(28), 4432-39.

[21]. Goss, M. D., Temte, J. L., Barlow, S., Temte, E., Bell, C., Birstler, J., & Chen, G. (2019). An assessment of parental knowledge, attitudes, and beliefs regarding influenza vaccination. Vaccine, 38(6), 1565-1571.

[22]. Gross, M. S., Tran, C. H., Sutherland, K. H., Castagno, J. C., & Amdur, R. J. (2014). Pilot Study. Obstetrics & Gynecology, 123(1), 114S-5S.

[23]. Ilesanmi, O., & Afolabi, A. (2020, September 23). Perception and practices during the COVID-19 pandemic in an urban

community in Nigeria: a cross-sectional study. PeerJ, 8, e10038.

[24]. Juno, J. & Wheatley, A. (2021, May 11). Mounting evidence suggests COVID vaccines do reduce transmission. How does this work?

[25]. Laerd Statistics. (2018). Kruskal-Wallis H Test using SPSS Statistics.

[26]. Larson, H. J., Hartigan-Go, K., & Figueiredo, A. D. (2018). Vaccine confidence plummets in the Philippines following dengue vaccine scare: Why it matters to pandemic preparedness. Human Vaccines & Immunotherapeutics, 15(3), 625-627.

[27]. Lasco, G. & Yu, V. G. (2021). Communicating COVID-19 vaccines: lessons from the dengue vaccine controversy in the Philippines. BMJ Global Health, 6(3).

[28]. Lazarus, J.V., Ratzan, S.C., Palayew, A. et al. A global survey of potential acceptance of a COVID-19 vaccine. Nature Medicine, 27(2), 225–228 (2021).

[29]. McAteer, J., Yildirim, I., & Chahroudi, A. (2020). The vaccines act: Deciphering vaccine hesitancy in the time of COVID-19. Clinical Infectious Diseases, 71(15), 703–705.

[30]. Machekanyanga, Z., Ndiaye, S., Gerede, R., Chindedza, K., Chigodo, C., Shibeshi, M. E., Goodson, J., Daniel, F., Zimmerman, L., & Kaiser, R. (2017). Qualitative assessment of vaccination hesitancy among members of the apostolic church of zimbabwe: A case study. Journal of Religion and Health, 56(5), 1683–1691.

[31]. Marti, M., de Cola, M., MacDonald, N. E., Dumolard, L., & Duclos, P. (2017). Assessments of global drivers of vaccine hesitancy in 2014—Looking beyond safety concerns. PLOS ONE, 12(3).

[32]. MAXQDA. (2020, August 04). Qualitative data analysis software: What is it and how does it support you.

[33]. McConnell, D. (2020). Balancing the duty to treat with the duty to family in the context of the COVID-19 pandemic. Journal of Medical Ethics, 46(6), 360–363.

[34]. Migriño, J., Jr, Gayados, B., Birol, K., De Jesus, L., Lopez, C. W., Mercado, W. C., Tolosa, J. C., Torreda, J., & Tulagan, G. (2020). Factors affecting vaccine hesitancy among families with children 2 years old and younger in two urban communities in Manila, Philippines. Western Pacific surveillance and response journal: WPSAR, 11(2), 20–26.

[35]. Miko, D., Costache, C., Colosi, H. A., Neculicioiu, V., & Colosi, I. A. (2019). Qualitative assessment of vaccine hesitancy in romania. Medicina, 55(6), 282.

[36]. Murphy, J., Vallières, F., Bentall, R. P., Shevlin, M., McBride, O., Hartman, T. K., Hyland, P. (2021). Psychological characteristics associated with COVID-19 vaccine hesitancy and resistance in Ireland and the United Kingdom. Nature Communications, 12(1).

[37]. Pogue, K., Jensen, J. L., Stancil, C. K., Ferguson, D. G., Hughes, S. J., Mello, E. J., … Poole, B. D. (2020). Influences on attitudes regarding potential covid-19 vaccination in the United States. Vaccines, 8(4), 582.

[38]. Rho, H. J., Brown, H., & Fremstad, S. (2020). A basic demographic profile of workers in frontline industries.

[39]. Saied, S. M., Saied, E. M., Kabbash, I. A., & Abdo, S. A. (2021). Vaccine hesitancy: Beliefs and barriers associated with COVID-19 vaccination among Egyptian medical students. Journal of Medical Virology, 93(7), 4280–4291.

[40]. Saleska, J. L., & Choi, K. R. (2021). A behavioral economics perspective on the COVID-19 vaccine amid public mistrust. Translational Behavioral Medicine, 11(3), 821–825.

[41]. Ulep, V., & Uy, J. (2019). Too early, too late: Timeliness of child vaccination in the Philippines.

[42]. University of Southern California. (2021). Quantitative Method.

[43]. Wilder-Smith, A. B., & Qureshi, K. (2020). Resurgence of measles in Europe: A systematic review on parental attitudes and beliefs of measles vaccine. Journal of Epidemiology and Global Health, 10(1), 46-58.

[44]. World Health Organization. (2020). Coronavirus. Retrieved June 06, 2021.

[45]. World Health Organization. (2020). Coronavirus disease (COVID-19) in the Philippines.

[46]. Yoda, T., & Katsuyama, H. (2021). Willingness to receive COVID-19 vaccination in Japan. Vaccines, 9(1), 48.

[47]. Yusof, Azianey & Chia, Yook Chin & Mohd Hasni, Yasmin. (2014). Awareness and prevalence of mammography screening and its predictors - a cross sectional study in a primary care clinic in Malaysia. Asian Pacific Journal of Cancer Prevention, 15(19), 8095–8099.