



**CORRELATION OF THE KNOWLEDGE, PERCEPTION, AND CONFIDENCE LEVEL
ON COVID-19 VACCINATION AMONG PARENTS IN SELECTED BARANGAYS OF
CAVITE DESPITE THE DENG VAXIA CONTROVERSY**

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ABSTRACT

With the COVID-19 pandemic continuously causing a global health crisis, the need for vaccination serves as the most viable solution to eradicate the disease. The parents' decision and willingness to subject their children to vaccination is an arising challenge due to several factors and experiences such as the Dengvaxia controversy. Hence, the researchers aim to correlate the respondents' knowledge and perception of the Dengvaxia controversy and the need for COVID-19 vaccination to their confidence level in the COVID-19 vaccination. The researchers utilized descriptive correlational design to determine the relationship between the variables present in the study. The data obtained through survey questionnaires of both open and close-ended was answered by the Filipino parents of children 12 years old and below in the selected barangays of General Trias, Cavite, chosen through systematic sampling technique. The Pearson r correlation coefficient of 0.550* revealed that the perception of parents regarding the Dengvaxia controversy has a significant and moderately strong correlation to their confidence level on COVID-19 vaccination. On the other hand, there is a significant yet very weak correlation between the knowledge of the parents regarding the need for COVID-19 vaccination (0.197**) and Dengvaxia controversy (0.129**) to their confidence level on COVID-19 vaccination of their children. In contrast to these, with a Pearson r correlation coefficient of 0.6, no significant relationship was found between the parents' perception of COVID-19 vaccination and their confidence level. From the findings obtained, it can be concluded that the respondents are still skeptical, and their confidence level when it comes to COVID-19 vaccination is low. Thus, the inconsistency in the parents' confidence level can be resolved through the dissemination of the right information regarding COVID-19 vaccines to the masses. With its emphasis on their safety and efficacy especially to those gravely affected by the Dengvaxia controversy.

KEYWORDS: COVID 19, Parents, Vaccine, Dengvaxia, Immunization, Vaccine Hesitancy.

INTRODUCTION

The Coronavirus Disease of 2019 (COVID-19) has caused a devastating pandemic, and it continually poses a significant threat to the health of the global population. With the overlapping difficulties this planet is facing, the vaccines for COVID-19 shine a ray of hope to the suffering (WHO, 2019). Vaccines save millions of people from over 20 life-threatening diseases by facilitating the natural body defenses to develop immunity to diseases (Centers for Disease Control and Prevention, 2018). Immunization is essential in eradicating the disease, with more vaccines becoming available, additional priority groups are to follow. With attention to people who are vulnerable to COVID-19 infection as well, such as the children, which involves the parents as the decision-maker for the health care they

receive. However, several barriers are growing and are posing a threat to the effective distribution of vaccines (Dube, 2020).

The Philippines' Dengvaxia incident is one of the controversial experiences that lead parents to question vaccination safety (Fatima, 2018). Region IV-A (CALABARZON) ranks along with regions with the highest vaccinated cases of Dengvaxia. Cavite, being part of the said region had a total number of 121,219 students vaccinated in public elementary schools as according to the Cavite Provincial Epidemiology Surveillance Unit (PESU) administered in three batches last 2016 (Pa-a, 2017).

The incident was filled with allegations and

controversies that shifted parents' perception to fear of immunization which leads to Vaccine Hesitancy (Valido, 2020). Vaccine Hesitancy is referred to as "the delay in acceptance or refusal of a safe vaccine despite the availability of vaccination services" (WHO, 2015).

Thus, the researchers determined the knowledge and perception of the Filipino parents residing in Cavite regarding the need for COVID-19 vaccination and Dengvaxia vaccine and correlated it to their level of confidence in having their children vaccinated against COVID-19.

METHODOLOGY

A descriptive correlational design was utilized in the study and was conducted in the selected barangays of General Trias, Cavite, wherein the researchers acquired the list of parents with children 12 years old and below in each barangay. From the population size collected, the sample size was derived through Slovin's formula. To select the respondents, a systematic sampling technique was used until the sample size was completed. The participants' knowledge and perception were determined through a survey questionnaire consisting of both closed and open-ended questions. Quantitative and qualitative data were collected from the respondents to support the study. The collection of data was conducted during the second semester of the school year 2020-2021 on a door-to-door basis with the help of barangay officials under COVID-19 pandemic guidelines and protocols. The Statistical Package for Social Sciences (SPSS) software was utilized for the computation of the percentage, weighted mean of the data, and Pearson r correlation coefficient test for the variables.

Study design

The researchers used the descriptive research design, which systematically describes a population's characteristics and particular phenomenon in the study. None of the research variables in this study can be manipulated by the researchers, as these variables are only studied as they occur in the actual setting.

This study's descriptive research type is the descriptive correlational design, which is carried out to describe the relationship or connection between two or more variables, which are interpreted without establishing causality or making conclusions regarding the cause-effect relationship among variables (Walinga, 2020). This is used to identify the correlation between the respondents' knowledge and perception about the need for COVID-19 vaccination and Dengvaxia controversy to their confidence level with the COVID-19 vaccination, whether dependent or independent from one another.

Respondents of the Study

To gather the respondents of the study, the researchers coordinated with the officials of the selected barangays in General Trias, Cavite to get a list of households with

children 12 years of age and below. To get a sample size from the total population, Slovin's formula was utilized to obtain a total of 238 respondents. Moreover, to acquire the sample size per barangay, the percentage per area was determined. The research study used survey questionnaires and acquired data through door to door collection in the selected barangays of General Trias, Cavite, with the eligible respondents.

The respondents chosen are parents with children 12-years old and below, located in the selected barangays of General Trias, Cavite (Arnaldo, Bagumbayan, Corregidor, Dulong Bayan, Gov. Ferrer, Sampalucan, 1896), and is a Filipino citizen (Filipino by birth, Filipino by naturalization, or dual citizen). Guardians like grandparents, aunts/uncles, and older siblings were also excluded as respondents of the study.

Sampling Techniques

The researchers utilized probability sampling to ensure that each member of the population has an equal opportunity to be chosen as the respondents. To determine the respondents from the population, the researchers used a systematic sampling procedure. It is a type of probability sampling that employs a constant interval to determine the respondents from a given population. In the study, the researchers obtained a list of households that have records of children ages 12 years old and below from the selected barangays, and then all the even numbered items are chosen to participate in answering the survey questionnaires provided.

Instrument

The researchers utilized survey questionnaires to collect the data needed for the study. It consists of both close-ended questions to obtain quantitative data and open-ended questions for qualitative data. The survey questionnaire is a combination of modified and self-made questions validated by experts for reliability and validity.

The quantitative survey questionnaire is divided into four categories. First is the respondents' demographic profile, the second category would satisfy the question concerning the respondents' knowledge about the need for COVID-19 vaccination that was adapted and modified from the World Health Organization. The next category would answer the knowledge of parents regarding the Dengvaxia controversy; additionally, the after-events and side effects were obtained from Medscape and Sanofi Pasteur's press release statement on updated information about the Dengue vaccine in the Philippines. The last category would measure parents' perception regarding the need for COVID-19 vaccination, Dengvaxia controversy, and their confidence level in the COVID-19 vaccination.

The qualitative survey questionnaire utilized an open-ended type of questions to acquire data that includes determining the perceptions of parents regarding the Dengvaxia controversy and the level of confidence of

parents to the COVID-19 vaccination.

Data Collection

The data collection was conducted during the second semester of the school year 2020-2021. First, a letter of permission to conduct the research in the selected barangays of General Trias, Cavite, was requested at their respective barangay halls. Once approved by the barangay chairman, the researchers sought the barangay officials' participation in the data collection. The respondents' participation is voluntary, where they will sign a consent form if they agree to be part of the study before handing in the survey questionnaire. The researchers also made two sets of questionnaires; one is in English; the other is in Filipino translation for the readers' comfort. Moreover; the data gathering procedure was conducted in a span of 4 days.

Statistical Treatment

The data collected were analyzed using the Statistical Package for the Social Sciences (SPSS) Software. The application of SPSS is widely used for statistical analysis in social science. It is also one of the best software for analyzing and computation of statistical data (Sharief, 2019). Moreover, descriptive statistics such as weighted mean, percentage, and Pearson *r* correlation coefficient were used to compute the data results.

Firstly, percentage (*P*) was used to compare the frequency of responses (*f*) to the total number of respondents (*N*). This is utilized in analyzing the data for the demographic profile as well as the respondents' knowledge about the need for COVID-19 vaccination and Dengvaxia controversy.

On the other hand, a weighted mean (*X*) was used in determining the respondents' perception towards the need for COVID-19 vaccination and the Dengvaxia controversy, and the respondents' confidence level concerning the upcoming COVID-19 vaccination for their children in the influence of the Dengvaxia controversy. Furthermore, the responses were given weights based on the Likert-scale provided.

Another statistical test is Pearson *r* correlation, it was utilized to determine the relationship between the knowledge of the respondents about the need for COVID-19 vaccination and Dengvaxia controversy to their confidence level with the COVID-19 vaccination, and the relationship between the respondents' perception about the need for COVID-19 vaccination and Dengvaxia controversy to their confidence level with the COVID-19 vaccination.

Ethical Approval

The research protocol was reviewed and approved by the Institutional Ethics Review Committee (IERC) of Centro Escolar University Research.

RESULTS

Out of the 238 respondents, 81 (34.03%) are at the age group of 30-39 and 201 (84.45%) are females. In terms of highest educational attainment, high school level which are 135 (56.72%) of the respondent dominated the total population of the respondents and 139 (58.40%) are unemployed. It also reveals that the number of children under 12 years and below whose parents answered the survey falls primarily under the one-child section (59.24%) (see Table 1).

Respondents Knowledge on the Need for COVID-19 Vaccination

In terms of the respondents' knowledge regarding the need of the vaccination for their children, 167 (70.17%) are knowledgeable (Figure 1) that COVID-19 vaccine can help prevent, protect, and build the immunity of their children against the virus, reduce the positive cases in the country, and are aware of the ongoing development of the vaccination.

The result shows that the topmost source of information regarding the vaccination are obtained by the respondents through Television News, amounting to 120 respondents (50.42%) followed by Social Media, with 72 (30.25%), as seen on table 2.

Table 1: Demographics of respondents.

Demographics	Frequency (%)
Age	
19 below	10 (4.20)
20-29	58 (24.37)
30-39	81 (34.03)
40-49	49 (20.59)
50-59	37 (15.55)
60 above	2 (0.84)
No response	1 (0.42)
Gender	
Female	201 (84.45)
Male	37 (15.55)
Highest Educational Attainment	
Elementary	26 (10.92)
Highschool	135 (56.72)
Vocational	24 (10.08)
College	52 (21.85)
Masteral	0
Doctoral	0
No response	1 (0.42)
Current Employment Status	
Full-Time	34 (14.29)
Part-Time	20 (8.40)
Student	3 (1.26)
Unemployed	139 (58.40)
Self-Employed	34 (14.29)
Retired	3 (1.26)
Others	4 (1.68)
No response	1 (0.42)
Number of Children	
1	141 (59.24)
2	74 (31.09)
3	18 (7.56)
4	3 (1.26)
5	1 (0.42)
6	1 (0.42)

Respondents knowledge on the Dengvaxia controversy

In terms of the respondent’s knowledge regarding the Dengvaxia incident, 223(93.70%) are not knowledgeable (Figure2) that the Dengvaxia vaccine workseffectively to patients who previously acquired Dengue and the fact the the vaccine is still being utilized in other countries.

The result shows that the topmost source of information regarding the Dengvaxia vaccination are obtained by the respondents through Television News, amounting to 158 respondents (66.39%) followed by Social Media, with 104 (43.70%), as seen on table 3.

Respondents’ Perception on the Need for COVID-19 Vaccination

The data shows that the respondent somewhat agreed with a mean average of 3.59, that the COVID-19 vaccination is safe and effective to be administered to their children and as solution for this pandemic (see Table 4).

Respondents’ Perception on the Dengvaxia controversy

The respondents’ perception of the Dengvaxia controversy is neutral with a mean average of 3.26 that resulted to an answer of neither agreeing nor disagreeing, but data shows that the parents still trust the government despite the Dengvaxia controversy as seen onthe table 5.

The Respondents’ Confidence Level to have their Children Vaccinated against COVID-19

The total weighted mean of 3.22, gives an interpreted data that the parents neither agree nor disagree with the statements provided. It can be inferred that the confidence level of the parents on the need for COVID-19 vaccination is neutral or undecided (see Table 6).

The Correlation of the Respondents’ Knowledge and Perception on COVID-19 Vaccination and Dengvaxia controversy towards Confidence Level for COVID-19 Vaccination among their Children.

Table 7 presents the complete data onthe correlation of the following variables.

The Pearson r correlation coefficient of 0.197** manifests a very weak correlation between the parents’ knowledge on the need for COVID-19 vaccination and their confidence level on the vaccination of their children against the disease.

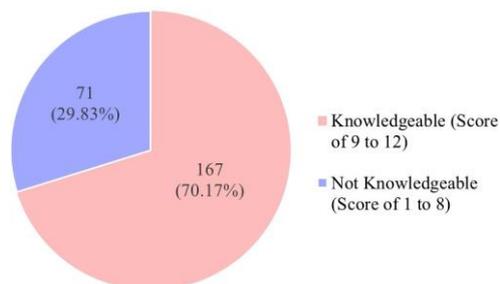


Figure 1: Knowledge on the need for COVID-19 vaccination.

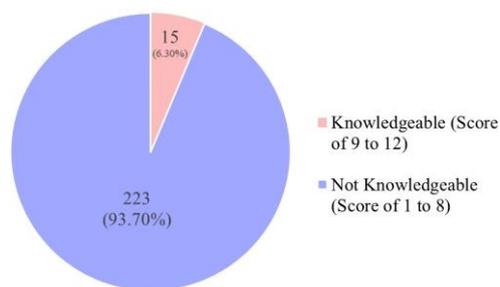


Figure 2: Knowledge on Dengvaxia controversy.

Table 2
Sources of Information on COVID-19 Vaccination

	f	Percentage (%)
Social Media	72	30.25
Neighbors	7	2.94
Government Announcement	29	12.18
Television News	120	50.42
School-based Programs	4	1.68
Pamphlets/ Newspaper	7	2.94
Others	4	1.68

Table 3
Sources of Information on Dengvaxia controversy

	f	Percentage (%)
Social Media	104	43.70
Neighbors	18	7.56
Government Announcement	36	15.13
Television News	158	66.39
School-based Programs	15	6.30
Pamphlets/ Newspaper	17	7.14
Others	6	2.52

The Pearson r correlation coefficient of 0.129** manifests a significantly very weak correlation between the knowledge of the parents on the Dengvaxia controversy and their confidence levelon the COVID-19

vaccination among their children.

There is no significant correlation, with a Pearson r correlation coefficient of 0.6, between the respondents’

perception on the need for COVID-19 vaccination and level of confidence in COVID-19 vaccination.

There is a significant and a moderately strong correlation between the parents' perception towards Dengvaxia controversy to their level of confidence in the COVID-19 vaccination. The Pearson r correlation coefficient resulted in a 0.550** which suggests that out of all the given variables correlated with the level of confidence of parents on the vaccination of their children, the perception towards the Dengvaxia controversy showed to be the highest.

19.1. Respondents' opinion regarding the Dengvaxia controversy

19.1.1. Agreeable Opinions

Based on the parents' responses, it is shown that the Dengvaxia controversy had garnered some positive feedback as well. According to the parents of the children who participated in the said vaccination in the past, the Dengvaxia vaccine did not produce any adverse effects on their children. In addition, some respondents also believed that the Dengvaxia vaccine is the only solution to eradicate or to prevent their children from being infected by the Dengue virus.

19.1.2. Neutral Opinions

The responses gathered show that parents are still undecided whether they perceive the incident of Dengvaxia as positive or negative. This goes to show that their perceptions are affected by the limited information

they gained about the said vaccine, mostly from television news. This is in accordance also with the result of the knowledge about the incident wherein most of the respondents resulted as not knowledgeable. This is the reason why most answers reflect parents as having second thoughts and the uncertainty about the Dengue vaccine and its safety and efficacy.

19.1.3. Disagreeable Opinions

Some respondents, on the other hand, when asked about their opinions on the Dengvaxia controversy, are enraged, scared, and disappointed. Based on their answers, the information received from the news is displeasing to hear which is why they pity those children who were inoculated by the Dengue vaccine. Moreover, the researchers were able to gain responses from parents of children who had first-hand experience, and they are worried about the harmful and bad side effects of Dengvaxia.

3.6. Respondents' Opinions on Vaccination against COVID-19

3.6.1. Agreeable Opinions

Agreeable opinions of parents when asked about vaccination of their children against COVID-19 are made up of hopeful insights. The respondents claim that the vaccination will lower the cases of the infected and will cause the end of the pandemic, along with the problems that have caused it in the country. It assures them that the vaccination will keep their children, along with the whole family and the immunocompromised

Table 4: Summary of the Parents' Perception about the need for COVID-19 Vaccination.

	Weighted Mean	Verbal Interpretation
COVID-19 vaccine is the only solution for the pandemic	3.66	Agree somewhat
The given time for the development of the vaccine is enough to ensure its safety and efficacy.	3.44	Agree somewhat
I trust the Department of Health (DOH) and the government in their decision for COVID-19 vaccination.	3.44	Agree somewhat
Vaccinations should be required before children could attend school physically.	3.61	Agree somewhat
My family and I will be more secured when we are vaccinated against COVID-19.	3.53	Agree somewhat
Average	3.59	Agree somewhat

People, safe from the disease. Others voice out their trust in the immunization and wish for the vaccination of the

whole population.

3.6.2. Neutral Opinions

Neutral opinions of parents when asked about vaccination of their children against COVID-19 are made up of in- between positive and negative comments. Some of the parent’s concern about the vaccines is that it

must undergo different clinical trials and ensure the safety and efficacy first before they subject their children to vaccination. The respondents are bothered by the warp-speed development of the said vaccine.

Table 5
Summary of the Parents’ Perception about the Dengvaxia controversy

	Weighted Mean	Verbal Interpretation
The information I receive about the Dengvaxia vaccine is reliable and trustworthy.	3.29	Neither agree nor disagree
The Dengvaxia controversy is only a scandal to discredit the government.	2.80	Neither agree nor disagree
I trusted the Department of Health (DOH) and the government upon giving Dengvaxia.	3.38	Neither agree nor disagree
I still trust the Department of Health (DOH) and the government even after the Dengvaxia controversy.	3.57	Agree somewhat
Average	3.26	Neither agree nor disagree

Table 6
Summary of the Parents’ Confidence Level on the need for COVID-19 Vaccination

	Weighted Mean	Verbal Interpretation
I will allow vaccination to my child against COVID-19.	2.86	Neither agree nor disagree
I will be meticulous and fastidious when it comes to the talk of vaccination against COVID-19.	3.73	Agree somewhat
I will endorse possible COVID-19 vaccination to my relatives and friends.	2.93	Neither agree nor disagree
I am confident to get my child immunized with the COVID-19 vaccine if I am given sufficient information about it.	3.39	Neither agree nor disagree
Average	3.23	Neither agree nor disagree

Thereby leading to the parents confidence level in decision-making about the vaccination against COVID-19 neutral.

shows a tendency to have an inconsistent confidence in the vaccination of their children against COVID-19 which.

3.6.3. Disagreeable Opinions

Disagreeable opinions of parents when asked about vaccination of their children against COVID-19 are made up of negative comments. Most of the parents are hesitant to vaccinate against COVID-19 due to the fact that they are scared about the vaccine’s side effects and doubtful on its efficacy. The respondents also said that they want the government first to be vaccinated as an assurance of safety. Others even claim that there is no COVID-19; therefore, there is no need for a vaccination. Some parents also believe that the COVID-19 vaccination should not be used on children.

DISCUSSION

In this study, the respondents are parents with children 12 years old and below. Majority belonging to the age group of 30 to 39, and are mothers. The data also shows that the highest educational level of the respondents is high school graduates and are mostly unemployed. Meanwhile, the majority of the parent respondents have only one child. These specifications of respondents

Table 7: The Correlation of the Respondents' Knowledge and Perception on COVID-19 Vaccination and Dengvaxia controversy towards Confidence Level for COVID-19 Vaccination among their Children.

Knowledge on the need for COVID-19 vaccination / Level of Confidence with the COVID-19 vaccination	.197**	significant very weak correlation
Knowledge on Dengvaxia controversy / Level of Confidence with the COVID-19 vaccination	.129**	significant very weak correlation
Perception on the need for COVID-19 vaccination / Level of confidence with the COVID-19 vaccination	0.6	No significant correlation
Perception of Dengvaxia controversy / Level of confidence with the COVID-19 vaccination	0.550**	Significant moderately strong correlation

On the other hand, the knowledge of the parents regarding the Dengvaxia controversy are low. Most of the respondents are not aware that the Dengvaxia vaccine works effectively to patients who previously acquired other countries. According to The Presidential.

Communications Operations Office, Secretary Martin Andanar, the lack of knowledge about the subject is also due to a lack of understanding and the confidence level of the parents, it shows that there is also a significant, yet a very weak correlation of these two variables. The perception of the parents regarding the need for COVID-19 vaccination is obtained by their weighted mean of 3.26. This confidence level was then correlated with the variables discussed in the results.

The knowledge of parents regarding the need for COVID-19 vaccination are found to be exemplary. Parents and guardians as the responsible authority for their child always seek transparent information about the COVID-19 vaccine development, efficacy, and safety (Ashkenazi et al. 2020). Hence, COVID-19 immunization of children.

The parents shows ambivalence or neutrality when their perception on Dengvaxia controversy was interpreted. But the data shows that the integrity of government when it comes to health advocacy was not affected, and the respondents still trust them despite the Dengvaxia

controversy. This neutrality was seen to have the highest significance of all the variables compared to the confidence level of the parents. Showing that there is a Significant and moderately strong correlation between the two.

CONCLUSION

From the findings obtained, it can be concluded that the respondents are still skeptical, and their confidence level when it comes to COVID-19 vaccination is low. Despite the uncertainty the respondents possess when it comes to their perception of the Dengvaxia controversy, they still view this as the variable with the highest significant correlation with their level of confidence in the COVID-19 vaccination out of all the variables in the study. Furthermore, the difference in the results of their knowledge on the need for COVID-19 vaccination and Dengvaxia controversy still resulted as both significantly very weakly correlated with their confidence level. On the other hand, although the perception about the need for COVID-19 vaccination revealed that the respondents agreed that immunization is the only solution to end this pandemic, they don't see any correlation with their level of confidence in the said vaccination. Thus, the inconsistency in the parents' confidence level can be resolved through the dissemination of the right information regarding COVID-19 vaccines to the masses. With its emphasis on their safety and efficacy, especially to those gravely

affected by the Dengvaxia controversy.

Recommendations

Based on the results of the study, the researchers recommend the following:

1. For the government to create a more stringent information dissemination regarding Dengvaxia and COVID-19 vaccination among the population.
2. To conduct the same study that covers respondents not limited to biological parents and on a wider scope of the population, especially those areas or locations that received Dengvaxia immunization.
3. To conduct a study to determine the barriers that affect the confidence level of the population on COVID-19 vaccination.

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