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THE LEVELS OF ACCEPTANCE AND URGENCY OF COVID-19 VACCINE AMONG ADULTS WITH COMORBIDITIES IN METRO MANILA

An Undergraduate Thesis Study Presented to the Faculty of Pharmacy

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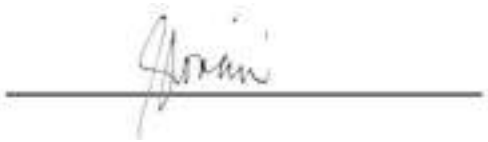

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CERTIFICATE OF ORIGINALITY

This is to certify that this research paper is the result of the researchers' collaborative concepts based on data gathered with the assistance of the professionals who guided in the construction of this study and does not contain any material previously published or written by another person, nor content that has been accepted for the award of any degree or graduation certificate in the University of Santo Tomas and other academic institutions, except where due acknowledgment is given.

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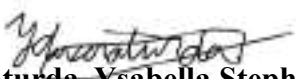

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The Levels of Acceptance and Urgency of COVID-19 Vaccine Among Adults with Comorbidities in Metro Manila

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The pandemic has caused havoc on people's lives in all countries and communities. More cases and fatalities have been confirmed day by day, making it one of the deadliest pandemics in the history of the Philippines and the world. Because of the continuous surge of COVID-19 cases in the Philippines, the population must obtain herd immunity to protect itself against the evolving coronavirus. This spurred the researchers to focus on vaccinations despite the possible limitations in studying this subject matter brought about by the COVID-19 pandemic.

This study would not have been possible without the assistance, encouragement, and support of notable individuals. We would like to take this opportunity to show our utmost gratitude to the following people and organizations.

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The Researchers

ABSTRACT

For the past few years, the COVID-19 pandemic has been the utmost concern for public health and safety. COVID-19's highly transmissible nature, along with its wide spectrum of symptoms and tremendous mortality toll, has made it one of the worst pandemics in human history. Vaccines have been made available to control the spread and severity of the pandemic. These vaccines were developed with the goal of minimizing symptomatic COVID-19 infections and, as a result, reducing the risks of a more serious prognosis. This study focused on determining the levels of acceptance and urgency of COVID-19 vaccines among adults with comorbidities in Metro Manila, considering that these respondents are at risk of acquiring a severe case of COVID-19. A total of 139 respondents participated in this survey which was disseminated online to the four central districts in Metro Manila using the stratified purposive sampling technique. The survey questionnaire obtained the respondents' demographic information and subsequently determined the levels of acceptance and urgency in the other sections. The study concluded that age has a significant effect while sex and location do not have a significant effect on the level of acceptance and urgency. Knowledge, attitude, and preference for the COVID-19 vaccine positively influenced the level of acceptance, while the sources of information and the practices of health protocols negatively influenced the level of acceptance of COVID-19 vaccination among adults with comorbidities. Moreover, knowledge, sources of information, and attitude positively influenced the vaccine urgency, while practices of health protocols negatively affected the vaccine urgency towards COVID-19 vaccination among adults with comorbidities.

Keywords: Attitude, Comorbidities, COVID-19, Level of Acceptance, Knowledge, Health Protocols, Practice, Preference of Vaccine based on Mechanism, Sources of Information, Urgency, and Vaccine

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CHAPTER I:

INTRODUCTION

1.1 Background of the Study

COVID-19 is a contagious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The causative agent is a highly transmissible and pathogenic coronavirus that poses a concern to public health and safety. The disease spreads through infected fluids such as saliva and respiratory secretions or respiratory droplets. These were emitted when an infected individual coughed, sneezed, or talked (World Health Organization, 2020e). COVID-19 has been linked to a broad spectrum of symptoms, from moderate to severe. After being exposed to the virus, symptoms may develop 2-14 days later. Mild to severe symptoms might affect anyone. Fever or chills, difficulty breathing, cough, exhaustion, muscular or body pains, headache, the new loss of taste or smell, sore throat, congestion or runny nose, nausea and vomiting, and diarrhea are all signs that an individual is infected with the disease (Centers for Disease Control and Prevention, 2021a).

More cases and deaths have been confirmed day by day, making it one of the deadliest pandemics in history and making several countries implement lockdown, including the Philippines. The pandemic has caused havoc on people's lives in all nations and communities, and it has hampered global economic development in 2020 to unprecedented levels (CRS, 2021). The pandemic has resulted in widespread supply shortages, compounded by panic buying, agricultural disruption, food shortages, and lower pollution emissions (Haque & Sarker, 2021). Many educational institutions and public locations have been shuttered in part or whole, and

many activities have been canceled or rescheduled. Furthermore, misinformation spreads over social media and the mainstream media.

These prompted the conduct of research geared toward discovering vaccines against COVID-9. As a result, several vaccines against COVID-19 were made available under different brand names like Pfizer, Moderna, Astrazeneca, Sinovac, Janssen, Sputnik, Covaxin, and Sinopharm (Department of Health, 2021a). These vaccines were intended to provide acquired immunity against SARS-CoV-2. The initial focus of these vaccines is on preventing symptomatic, often severe, illnesses. The COVID-19 vaccines have been generally credited with preventing the virus' spread, severity, and fatality (World Health Organization, 2021d). Vaccines work by simulating the virus or bacterium that causes the sickness and causing the body to produce antibodies in response. These antibodies will protect a person once infected with the disease-causing virus or bacterium. COVID-19 vaccines differ in terms of their content and how they elicit an immunological response that produces antibodies. Antibodies defend the body against germs and protect a person infected with a disease. Vaccines can be inactivated, weakened, or dead copies of the virus or bacteria in whole or in part, or a generic product (such as mRNA vaccines) that makes protein copies without producing disease (Department of Health, 2021c). Booster doses may also be provided when immunity and clinical protection in a vaccinated population that has finished a significant immunization series has declined below a rate considered appropriate over time. A booster dose's goal is to restore vaccination efficacy when it has been determined that it is no longer adequate (World Health Organization, 2021). According to an interview by The Harvard Gazette (2021), Asst. Prof. Jonathan Abraham stated that a booster shot misleads the immune system into believing it sees a pathogen again, causing antibody-producing cells and other immune cells to go into overdrive. Antibodies can be

produced in larger quantities and with improved quality. He also revealed that through a process known as antibody affinity maturation, our immune system enhances its capacity to identify pathogens and make antibodies that adhere more firmly to their target. For example, affinity-developed antibodies can be more successful at recognizing variants with numerous mutations in the SARS-CoV-2 virus.

It is necessary to administer vaccines appropriately in order to guarantee that they are both effective and safe. First among the procedures done when getting vaccinated is to review every patient's clinical history and conduct a physical examination to check if the patient is eligible to receive a vaccination. Before administering a vaccine, always check for contraindications and precautions. Screening might help the patient avoid having an inauspicious reaction to the vaccine. It is also obligatory to educate the patient. People want vaccination information that is transparent and consistent. These should contain advice on when to seek medical help and how to manage adverse effects such as injection site discomfort, fever, and general discomfort. After vaccination, health care professionals must keep track of certain details in a patient's medical record. They are required by law to provide the patient a personal vaccination record that includes the name of the immunization and the date it was administered (Centers for Disease Control and Prevention, 2020a).

Vaccination sites have been established around the world. Stadiums, arenas, ice rinks, cathedrals, town squares, and museums have all been used as mass vaccination venues. These will aid in achieving population-wide immunization, but despite the increasing number of vaccination venues, the number of vaccines available is still limited (Goralnick *et al.*, 2021).

Given the limited supply of COVID-19 vaccine, the World Health Organization's (WHO) Strategic Advisory Group of Experts (SAGE) on Immunization developed a prioritization

framework based on the recommendations of independent expert bodies. The Philippine National Deployment and Vaccination Plan established strategies and contingencies based on this concept to assure the fair distribution of vaccination supplies to all Filipinos. Groups A, B, and C are the three priority qualifying groups. Frontline health professionals, senior citizens, individuals with comorbidities, and frontline personnel in important public and private sector sectors, including uniformed personnel and the impoverished population, make up Group A. Other government workers, vital workers, socio-demographic groups at considerably greater risk (other than older people and indigent population), Overseas Filipino Workers (OFWs), and the remainder workforce make up Group B. Group C is made up of the rest of the population not included in the previous categories (World Health Organization, 2020e).

Patients with comorbidities belong to category A3 because individuals who belong to this group who tested positive for COVID-19 are more prone to have a severe course and development of the disease. COVID-19 is anticipated to have an increasingly fast and severe progression in people with underlying health problems or comorbidities, often resulting in death. With this, individuals with comorbidities should take all necessary steps, including getting vaccinated to prevent contracting SARS CoV-2, as their prognosis is generally the least favorable (Sanyaolu *et al*., 2020).

However, even though there are already several COVID-19 vaccines available, the urgency of getting vaccinated seems to be ignored by many. According to a recent poll, just around half of Americans want to get vaccinated; two-thirds of Americans will not get the COVID-19 vaccine as soon as it becomes available, and 25% will never get it (Guidry *et al.*, 2021).It was also found that those who could recognize the possible threat brought about by diseases were more likely to be vaccinated. Those at higher risk (those over 65 and those with

underlying medical issues, for example) were no more willing to obtain the vaccine than those at lesser risk (Kelly *et al.*, 2020). The Department of Health (DOH) data show that only around 60% of Filipinos with comorbidities are fully vaccinated, and 6% are boosted (Department of Health, 2022). Hence, further studies are still necessary.

Because of the continuous upsurge and plummet of COVID-19 cases in the Philippines, there is an urgent need for the public to acquire herd immunity to gain protection against the mutating coronavirus. Since COVID-19 vaccines elicit a wide immune response including a range of antibodies and cells, they are anticipated to provide at least some protection against novel viral variants; thus, alterations or mutations in the virus should not make immunizations completely worthless (World Health Organization, 2021b). Importantly, comorbid adults or those with underlying conditions are at high priority since they have an increased risk of contracting the severe effects of the virus. Hence, this study determined the levels of acceptance and urgency of the COVID-19 vaccine among individuals with comorbidities. This, in turn, will aid in cultivating a safer environment for Filipinos regarding the contraction of COVID-19, especially those who belong to the most vulnerable groups.

1.2 Statement of the Problem

Due to the persistent upsurge of COVID-19 cases in the Philippines, particularly in Metro Manila, the welfare and health of millions of Filipinos are being put at great risk. The upsurge has led healthcare professionals to become overly fatigued and exhausted, health facilities being at full capacity, and medical resources inadequate. The immediate solution that was imposed on the problem was the acceptance of vaccines to serve as protection of the public from the disease, prioritizing people with comorbidities who are most likely to be infected. This study aimed to determine the levels of acceptance and urgency of the COVID-19 vaccine among adults with comorbidities in Metro Manila.

1. What are the levels of acceptance and urgency of the COVID-19 vaccine among adults with comorbidities in Metro Manila?
2. Which age group among the respondents has the highest level of acceptance and urgency in COVID-19 vaccination?
3. Which sex has the highest level of acceptance and urgency in COVID-19 vaccination?
4. Which district in Metro Manila has the highest level of acceptance and urgency in COVID-19 vaccination?
5. What is the preferred type and brands of vaccine of the respondents based on the mechanism of action of the vaccines?
6. What is the impact of the mechanism of action of readily available COVID-19 vaccines on the level of vaccine acceptance of adults with comorbidities?

7. What is the effect of the respondents' knowledge, sources of information, attitude, and practice of health protocols on the levels of acceptance and urgency of COVID-19 vaccination among adults with comorbidities in Metro Manila?

8. What factor contributes the most to the level of acceptance and urgency of COVID-19 vaccination among adults with comorbidities?

1.3 Objectives of the Study

This research generally and specifically aimed to:

1.3.1 General Objective

- To determine the levels of acceptance and urgency of COVID-19 vaccine among adults with comorbidities in Metro Manila.

1.3.2 Specific Objectives

- Specifically, the study further sought:

    1. To identify the age group among the respondents with the highest level of acceptance and urgency in COVID-19 vaccination.

    2. To determine which sex has the highest level of acceptance and urgency in COVID-19 vaccination.

    3. To identify the district in NCR with the highest level of acceptance and urgency in COVID-19 vaccination.

4. To specify the preferred type and brands of vaccine of the respondents based on the mechanism of action of the vaccines.

5. To assess the impact of the mechanism of action of readily available COVID-19 vaccines on the level of vaccine acceptance of adults with comorbidities.

6. To assess the effect of the respondents' knowledge, sources of information, attitude, and practice of health protocols on the levels of acceptance and urgency of COVID-19 vaccination among adults with comorbidities in Metro Manila.

7. To identify what factor highly contributes to the level of acceptance and urgency of COVID-19 vaccination among adults with comorbidities.

1.4 Hypothesis

The researchers hypothesized that:

- H1: There is a significant difference in the level of acceptance and urgency of COVID-19 vaccination among the age groups of the respondents.

- H2: There is a significant difference in the level of acceptance and urgency of COVID-19 vaccination between male and female adults with comorbidities.

- H3: There is a significant difference in the level of acceptance of COVID-19 vaccination amongst the four districts in Metro Manila.

- H4: Knowledge positively influences the level of vaccine acceptance of COVID-19 vaccination among adults with comorbidities.
- H5: Sources of Information positively influence the level of vaccine acceptance of COVID-19 vaccination among adults with comorbidities.
- H6: Attitude positively influences the level of vaccine acceptance of COVID-19 vaccination among adults with comorbidities.
- H7: Practice of Health Protocols positively influences the level of vaccine acceptance of COVID-19 vaccination among adults with comorbidities.
- H8: Preference of COVID-19 vaccine based on mechanism of action strongly impacts the level of vaccine acceptance of COVID-19 vaccination among adults with comorbidities.
- H9: Knowledge positively influences the level of urgency of COVID-19 vaccination among adults with comorbidities.
- H10: Sources of Information positively influence the level of urgency of COVID-19 vaccination among adults with comorbidities.
- H11: Attitude positively influences the level of urgency of COVID-19 vaccination among adults with comorbidities.
- H12: Practice of Health Protocols positively influences the level of urgency of COVID-19 vaccination among adults with comorbidities.

1.5 Theoretical Framework

Based on Figure 1.1, the study was anchored on three theoretical models that demonstrate people's behavior during disease outbreaks: Health Belief Model (HBM), Knowledge, Attitude/Beliefs and Practice (KABP) Theory, and Theory of Planned Behavior (TBP). Each theoretical model has its corresponding factors that affect the study's dependent variables. The two dependent variables of the study were the level of acceptance and level of urgency toward the COVID-19 vaccine. Although the HBM served as a basis for both variables, the KABP was the separate basis for the determining factors of level of acceptance. At the same time, TBP was the separate basis for the determining factors of level of urgency. For the level of acceptance, its independent variables or determining factors were the demographic variables, knowledge, sources of information, attitude, practices of COVID-19 preventive measures, and the preference of vaccine-type based on the mechanism of action. The possible outputs of the study with regards to the level of acceptance and level of urgency variable were to specify the preferred vaccine of the respondents based on the mechanism of action of vaccines, identify which age group has the highest level of acceptance and urgency, determine which sex has the highest level of acceptance and urgency, discern which district in Metro Manila has the highest level of acceptance and urgency, assess the impact of the mechanism of action of readily available COVID-19 vaccines on the level of vaccine acceptance and urgency, and recognize the effect of the respondents' knowledge, sources of information, attitude, and practice of COVID-19 preventive measures on the levels of acceptance and urgency of COVID-19 vaccination among adults with comorbidities in Metro Manila. For the level of urgency, its independent variables or determining factors were the demographic variables, knowledge, sources of information, attitude, and practice of health protocols.

The three theories used in this research study were the Health Belief Model (HBM), Knowledge, Attitude/Beliefs and Practice Theory (KABP), and Theory of Planned Behavior (TBP). The HBM is comprised of factors such as perceived susceptibility, severity, benefits, barriers, and cues to action, which are mostly visible during outbreaks (Walker *et al*., 2021). Perceived susceptibility is the belief in the likelihood of having an infection; perceived severity is the negative effect of having the disease; perceived benefits, with regards to vaccination, concern an individual's perspective towards the principle and significance of being vaccinated; perceived barriers are hindrances that contribute to vaccine hesitancy such as misinformation, physical, psychological, and financial factors; and lastly, cues to action are delegated information, people involved, peer pressure, and other actions that influence an individual's vaccination status (Walker *et al*., 2021). In this study, the model can identify the perceived barriers that contribute to the public's mistrust of the efficacy of the developed vaccines and the perceived benefits that will boost the people's immunity, making them less anxious about contracting COVID-19 disease while being allowed to travel to public places. These can then be associated with the perceived susceptibility—the likelihood of contracting COVID-19 and its variants upon vaccination—and the perceived severity—the damaging consequences of COVID-19 disease, whether vaccinated or unvaccinated, while also taking into account booster vaccination. The cues of action can also be applied as they can help determine the factors that influence the perceptions and attitudes of the public towards developed vaccines, which in turn affects their vaccination status.

The Knowledge, Attitudes/Beliefs and Practice (KABP) Theory also describes the knowledge about vaccination of individuals concerning their level of awareness or sensitivity to immunizations (Walker *et al*., 2021). It also includes people's mindset and behavior towards

vaccinations and their beliefs about the procedures, whereas the application refers to the knowledge, concepts, and other relevant elements that influence vaccination. A lack of understanding of the COVID-19 vaccination was shown to have an impact on vaccine uptake rates. Because of the low-risk perception, most young people are less likely to follow COVID-19 safety rules. Although asymptomatic transmissions have been detected recently, they have only appeared in the younger demographic and show indications of severe disease. Thus, individuals can pass the virus without experiencing any early symptoms, which means vaccination of this population is vital. Vaccine acceptance is a critical issue to be aware of, as people have to understand their attitudes regarding it. They also offer a more global view of the crucial aspects affecting vaccination. Educational campaigns have a better chance of succeeding if they target students since their attitudes and beliefs are in flux. Understanding their perspective on the COVID-19 vaccine is essential for developing proper immunization planning and pandemic response plans. The researchers were keen to find the influences that led people to accept the COVID-19 vaccines. The Knowledge, Attitudes/Beliefs, and Practice (KABP) Theory, according to Wang et al. (2020), separates the process of human behavior change into three parts, during which human health behaviors may also be effectively modified. The three steps include acquiring knowledge, generating attitudes/beliefs, and forming practice/behaviors.

Lastly, the Theory of Planned Behavior (TBP) consists of perceived behavioral control and intention (Guidry et al., 2021). The Theory of Planned Conduct (TBP) indicates that behavior is oriented toward the aim of bringing about the manners, which is influenced by attitude toward the behavior and perceived behavioral control in the case of acquiring a COVID-19 vaccination (i.e., whether the ability to get the vaccine is within an individual's control) The COVID-19 pandemic and the need for an urgent response to acquiring the vaccines

are necessary to reduce its effects, which means comprehending how vaccine uptake intentions might change if a vaccine is made available under the emergency authorization act. The level of urgency under this theory includes its independent variables or determining factors: knowledge, sources of information, attitude, and practices of COVID-19 preventive measures. This aided in determining the level of urgency variable following the correlation between the level of urgency and its determining factors—adults with comorbidities in this study.

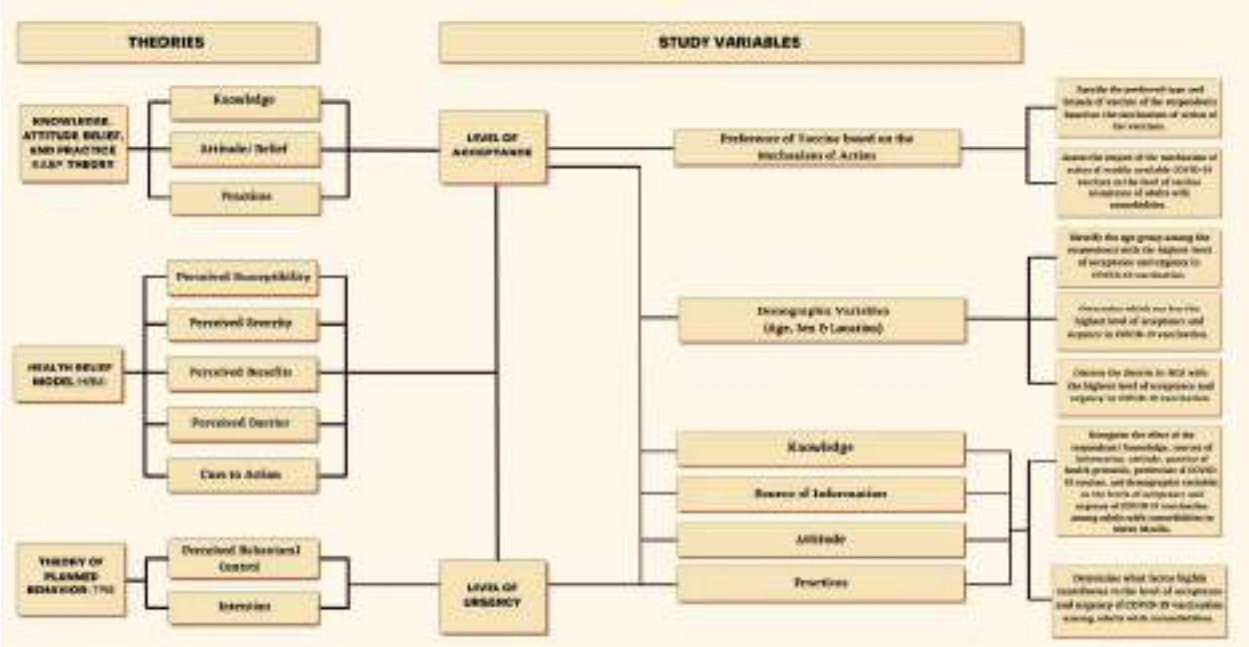

Figure 1.1. The Theoretical Framework of the Study

1.6 Conceptual Framework

Figure 1.2. shows the conceptual framework of our study, which depicts how the variables and hypotheses of the study connect. Our hypotheses, as shown here, were that the study's independent variables (knowledge, attitude, practices, and sources of information) influence the two dependent variables, level of urgency and level of acceptance. However, it

must be noted that the independent variable preference of vaccine based on mechanism action was only connected to the level of acceptance dependent variable. As for the demographics, which were also considered independent variables, the researchers determined the differences in levels of acceptance and urgency considering the respondents' demographics. The H1 to H3 arrows indicated the differences in the levels of acceptance and urgency based on the respondents' age, sex, and location. The H4 arrows indicated that the respondents' knowledge regarding the COVID-19 vaccine influenced their level of acceptance. The H5 arrows denoted how the sources of information affected the level of acceptance of the COVID-19 vaccine. The H6 arrows implied how the attitude of the respondents influenced the level of acceptance towards the COVID-19 vaccine. The H7 indicated how the practices of health protocols affected the level of vaccine acceptance of COVID-19 vaccination among adults with comorbidities. The H8 arrow, which was only connected to the level of acceptance variable, showed how the preference for vaccine of the respondents, based on the vaccines' mechanisms of action, strongly impacted their level of acceptance. The H9 arrows denoted how knowledge influenced the level of urgency of COVID-19 vaccination among adults with comorbidities. The H10 arrows implied how the respondents' sources of information influenced the level of urgency of COVID-19 vaccination among adults with comorbidities. The H11 arrows indicated how the attitude of the respondents affected the level of urgency towards the COVID-19 vaccine. And lastly, the H12 arrows denoted how the practices of health protocols influenced the level of urgency of COVID-19 vaccination among adults with comorbidities. Our study was based on these different hypotheses to get the results and conclusion.

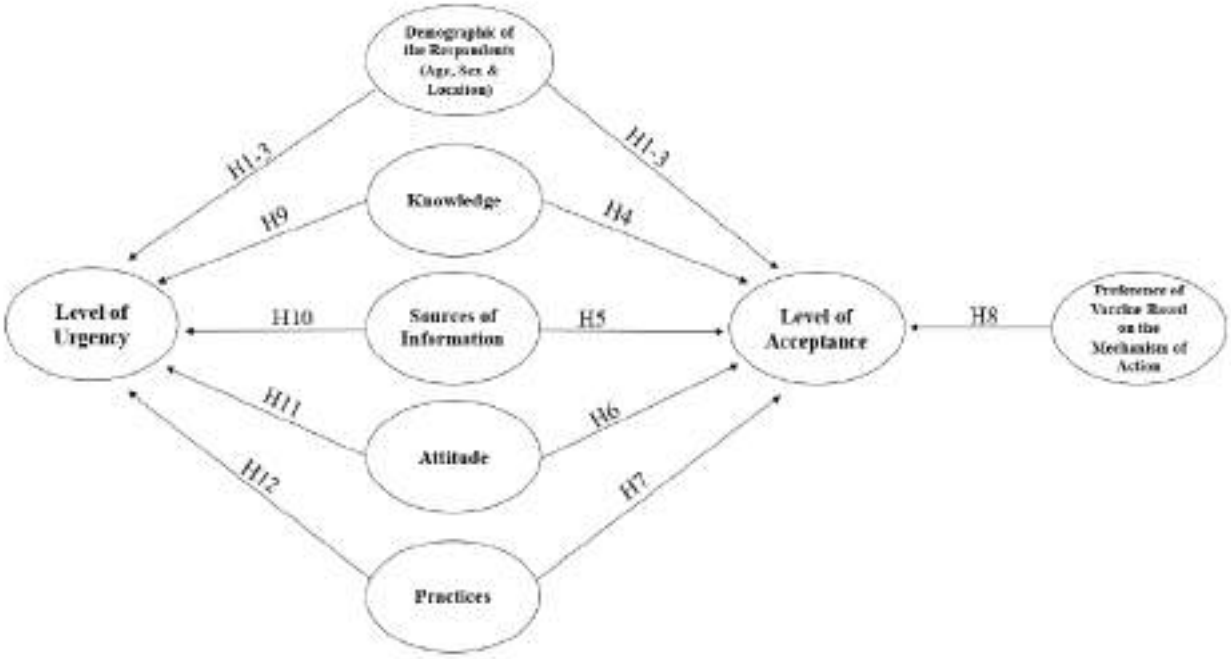

Figure 1.2. The Conceptual Framework of the Study

1.7 Significance of the Study

The Philippines is currently experiencing a crisis brought about by the COVID-19 pandemic. Given the severity of the problem, the findings of this study sought to determine the characteristics that influence the level of acceptance and urgency of the COVID-19 vaccination among one of the most vulnerable populations to the virus, individuals with comorbidities. Furthermore, this study is of significance to the following:

Government, Institutions, and Organizations

The findings of this study may contribute in the creation of long-term improvements in pandemic management since they revealed the elements that influence vaccine acceptability and

urgency among people with comorbidities. This research might pave the way for authorities to address vaccine-related concerns and focus on populations with low acceptance and urgency. The data provided them an insight into the determinants of vaccine acceptance, which allowed them to modify and improve their strategies, protocols, and manner of implementing the response to the COVID-19 pandemic.

Community

Considering that the study's target population was individuals belonging to the most vulnerable group in the contraction of COVID-19 and the manifestation of its severe symptoms, this study was designed to evaluate their level of acceptance and urgency toward COVID-19. This would aid in increased awareness of the public regarding COVID-19 and the significance of vaccination among adults with comorbidities. During the phase 3 trial vaccination, individuals with comorbidities who underwent the trial experienced systemic adverse effects. Hence, significant vaccination apprehension was still present in those with substantial comorbid illnesses. Moreover, most of the population was not fully aware of each COVID-19 vaccine's efficacy and safety based on the presence and types of their comorbidities. The findings may improve the community's overall perception of COVID-19 vaccinations. Furthermore, communication and understanding between each individual concerning reliable information about COVID-19 may advance through this study. This study may aid in formulating a response to the pandemic. It may cause a significant decrease in the COVID-19 cases and improve the development of natural herd immunity in the Philippines. Hence, this study offered a way for the community to transition out of the crisis caused by the COVID-19 pandemic.

Education

The findings of this research gave an updated perspective on the existing knowledge about the levels of acceptance and urgency of the Filipino adult living with comorbidities towards the COVID-19 vaccine that the other researchers have contributed, especially in the Philippines. Hence, this research may become the primary source of the levels of acceptance and urgency toward the COVID-19 vaccine. This research also provided additional knowledge about the determinants that the people with comorbidities have for vaccine acceptance and urgency. Understanding their levels of acceptance and urgency will help the medical field create further ways to administer the inoculation of vaccines.

Future research

Since the local studies about the levels of acceptance and urgency of the Filipinos living with comorbidities towards the COVID-19 vaccine were only a few, the findings of this research contributed to the existing knowledge. The statistics provided in this research gave clues to future researchers on what aspects they need to focus on in such a manner that the vaccinations among people with comorbidities will increase since they are at risk of acquiring COVID-19. Additionally, the recommendations of this study will help them delve more into the topic, which will help them understand why people with comorbidities accept or do not accept the vaccination against COVID-19.

1.8 Scope and Limitation

The focus of the research was to see whether there is a link between COVID-19 vaccine acceptance and urgency among adults in Metro Manila with comorbidities. The study's dependent variables were the levels of acceptance and urgency toward the vaccine. In contrast, the independent variables were age group, location, sex, knowledge, practices, attitude, and sources of information. An online survey was distributed to the target group using Google forms referrals.

The estimated sample size of this study was 385. It was distributed to the four districts in Metro Manila, wherein the sample size per district was based on their respective populations. Since District 1 has a population of 1,159,759, it covers 14% of the population of Metro Manila. Therefore, the researchers gathered at least 54 respondents from this district. District 2 has a population of 3,029,870, which is 36% of the population of Metro Manila, which led to the computed target respondents of 138 for this district. District 3 had a population of 1,836,826 or 22% of Metro Manila's population, which gave a value of 84 as the target number of respondents when derived from the formula. Lastly, District 4 had a population of 2,363,045, which covered 28% of the population of Metro Manila; therefore, 108 respondents were targeted for this district.

The selected respondents of the study were adults aged 18 to 59 years old who had comorbidities, which referred to the existence of at least two medical conditions or diseases. Individuals categorized under A3 (Persons with Comorbidities) in the Department of Health vaccine prioritization were also accepted as respondents of this study. These were the individuals who had at least one medical condition or disease. Moreover, the researchers sent an inquiry to the team leader of the Department of Health - Infectious Diseases and Adult Health Division

(Concurrent) and Evidence Generation and Management Division, Dr. Jose Gerard B. Belimac, MD, MPH, regarding the definition of comorbidity. According to his response (as seen in Figure 7 of Appendix H), individuals categorized under A3 were referred to as "Persons with Comorbidities" despite having only one disease due to the high risk of this population for contracting COVID-19, which has served as the primary disease and has coexisted with one or more medical condition/s or disease/s. The researchers selected the age group of 18 to 59 years old since developmental neuroscientists had generally deduced that 18 years of age were required to reach adulthood (National Research Council *et al*., 2015). On the other hand, considered old age to start at 60 years of age (Britannica, n.d.).

The specific trait of comorbidity was also included as a criterion because adults with comorbidities had a higher probability of experiencing a severe clinical outcome (Bajgain *et al*., 2021). The respondents enumerated their comorbidities in the survey questionnaire. The researchers have requested the validity of their conditions by providing proof of medical prescription, a certificate from a certified physician, medical records, vaccination cards, or any other documents that may prove that they were under the A3 category in the vaccine prioritization. The researchers needed to obtain a copy of these documents to assure the factuality of the respondents' comorbidities which can affect the study's credibility. However, the respondents had the right to refuse if they did not want to provide these documents. If the respondents refused, their responses would not be counted since valid proof of comorbidity was a prerequisite to being able to participate in the study. Furthermore, the respondents were allowed to cover their names in the photo as proof of comorbidity if they opted not to disclose their names. Lastly, Metro Manila was chosen as the place of interest due to its number of recorded cases per day, which was higher than other places in the Philippines (Department of

Health, 2021). Thus, the target research participants were those living within the cities/municipalities of Metro Manila (Manila, Mandaluyong, Marikina, Pasig, Quezon, San Juan, Caloocan, Malabon, Navotas, Valenzuela, Las Piñas, Makati, Muntinlupa, Parañaque, Pasay, Pateros, and Taguig).

If any of the criteria did not apply to the respondent, the respondent's answers were deemed ineligible to use as data since it may affect the accuracy of the results and, therefore, the whole study.

The study's limitations include that the survey would only be conducted online due to COVID-19-mandated safety protocols. The researchers disseminated survey forms to individuals with comorbidities from 18 to 59 of age. This was because those beyond the given range were not included in the classification as 'adults.' Not all senior citizens were familiar with the online-generated forms, so it would be difficult for the researchers to collect data. Furthermore, individuals with comorbidities from outside Metro Manila were excluded from this study.

1.9 Definition of Terms

The following terminologies below are defined operationally for further description and clarification.

- **Acceptance**
    - It is defined as the act of accepting something or approving something. Acceptance is defined in this study as persons with comorbidities agreeing to obtain the immunization.
- **Attitude**
    - It is the way of thinking that influences the person's behavior. In this study, it is defined as the way of thinking of people with comorbidities towards the COVID-19 vaccine.
- **Booster Shot**
    - Antibody-producing cells and other immune cells are reactivated after the immune system is tricked into thinking it is encountering a pathogen again. In this study, a booster shot is an additional dosage of vaccination given to those who had already their first and second doses.
- **Comorbidity**
    - Comorbidity is defined as the co-occurrence of a condition or disease, which are often chronic or long term disease, in the same person at the same time. In this study, it is defined as the simultaneous existence of diseases or medical conditions.

- **Coronavirus disease (COVID-19)**

- Coronavirus disease (COVID-19) is a highly infectious respiratory disease caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS COV-2), a member of the coronavirus family.

- **Knowledge**
  - Knowledge is defined as the state of being aware. In this study, it is defined as the information acquired by the respondents about the COVID-19.
- **Level of acceptance**
  - Level of acceptance is defined as the act of accepting or the state of being accepted or acceptable. In this study, it is defined as the rate of the acceptance of those people with comorbidities towards COVID-19 vaccines.
- **Mechanism of Vaccine Action**
  - Mechanism of vaccine action explains how the vaccine works inside the body and how it will help people in combating lethal diseases. In this study, it is defined as the mechanism wherein the vaccine works inside the body.
- **Practices**
  - Practices are defined as to do regularly or constantly as an ordinary part of your life. In this study, it is defined as the ways on how the people with comorbidities accept the COVID-19 vaccines.

- **Urgency**
  - The sensation that something needs immediate attention and action must be done as quickly as feasible is referred to as urgency. In this study, it is defined as the

eagerness of people with comorbidities to get the vaccine since they are one of the prioritized groups

- **Vaccine**
    - A substance produced from the causal agent of a disease, its products, or a synthetic replacement, processed to serve as an antigen without having the disease, is used to promote the formation of antibodies and give protection against one or more diseases. In this study, it is defined as a substance that protects the comorbidities from acquiring the COVID-19 disease.
- **Vaccine Acceptance**
    - Vaccine acceptance is described as an individual or collective decision to accept or decline vaccination when given the chance. In this study, it is defined as the act of receiving the vaccines by those people with comorbidities.

CHAPTER II:

REVIEW OF RELATED LITERATURE

This chapter contained the relevant literature that the researchers had thoroughly sought and read. This has provided necessary knowledge on COVID-19 vaccination, which served as the basis of the study and its methodology. It also served as informational support for the discussion and conclusions.

2.1 Coronavirus Disease 2019 (COVID-19)

2.1.1. Historical Background

In December 2019, a series of instances were reported in Wuhan, Hubei, China, revealing people admitted to hospitals with a new disease characterized by pneumonia and respiratory failure caused by the SARS-Cov-2 coronavirus. COVID-19 was identified as the etiological agent by the World Health Organization on February 11, 2020. Despite intensive containment measures, the epidemic spread and infected Asia, the Middle East, and Europe. COVID-19 was designated a pandemic on March 11 at a world press conference hosted by Tedros Adhanom Ghebreyesus, the WHO's General Director (Ferrer, 2020).

Regarding the virus itself, SARS-CoV-2 can be passed and can infect even a healthy person who comes in contact with an infected person. The primary transmission routes are respiratory droplets. Aerosol transmission has been observed in studies for SARS-CoV-2. However, there has been no definite investigation into newborn infections. More than 22 million inherent cases and 0.8 million deaths had been reported worldwide as of August 20, 2020,

affecting practically every country. The following factors contributed to the challenges associated with SARS-CoV-2 infection: [1] The essential features of the viral infection and the infection durations are unknown; [2] The majority of infected people do not display any symptoms, yet they can still spread the disease; and [3] The effect of altering population susceptibility on infection spread is unknown (Yesudhas *et al*., 2020).

2.1.2. General Information

According to a retrospective single-center study by Alshukry *et al*. (2020), the most common manifestations of COVID-19 were dry cough (32.6%), fever (34.3%), and shortness of breath (75.6%). Compared to non-ICU patients, ICU patients were more likely to have comorbidities, such as diabetes (35.4% vs. 20.3%) and hypertension (40.2% vs. 26.9%). COVID-19 has a wide range of clinical symptoms, including asymptomatic carriers, acute respiratory distress syndrome (ARDS), and pneumonia of varying severity. The majority of the patients have minor symptoms such as fever, cough, dyspnea, myalgia, and tiredness. Furthermore, being older, male, and having coexisting chronic illnesses such as hypertension, cardiovascular disease, and diabetes have all been linked to a worse prognosis. Based also on the study by da Rosa Mesquita *et al*. (2020), some other common symptoms included neurological symptoms (20.82%), dermatological manifestations (20.45%), anorexia (20.26%), myalgia (16.9%), sneezing (14.71%), sore throat (14.41%), rhinitis (14.29%), goosebumps (13.49%), headache (12.17%), chest pain (11.49%), and diarrhea (9.59%). COVID-19 is difficult to distinguish during the early stages since it has various clinical symptoms similar to those of other

respiratory illnesses. Moreover, the early symptoms of COVID-19 might differ considerably from one patient to the next, indicating that the disease is clinically dynamic.

As the pandemic progressed, the animal-to-human transmission was thought to be the cause of the illness, but because of the rising number of individuals without a history of exposure to animals but still developed the disease, it was later shown that human-to-human transmission is, in fact, a systematic method of viral dissemination (Zhou *et al*., 2021). SARS-CoV-2 is considered capable of transmitting mostly by respiratory droplets generated by an infected person's talking, coughing, and sneezing. If an infected individual is within one meter of a vulnerable host, the chance of transmission is heightened. While the danger of transmission by routes other than the respiratory system is low, it is feasible. Indirect transmission can occur through (1) fomites or surfaces in an infected patient's local environment and (2) things used on the sick individual (Karia *et al*., 2020).

2.1.3. Global Statistics

According to Dawood *et al.* (2020), 100 (50%) of 199 countries and localities (including mainland China) reported cases of COVID-19 from December 31, 2019, to March 10, 2020 (corresponding to epidemiological weeks 1–11 of the COVID-19 epidemic). Only two nations outside mainland China reported cases of COVID-19 during the first three weeks of the outbreak: Japan and Thailand. During weeks 4 and 5, 24 more countries reported cases, including the first confirmed COVID-19 cases from the Americas (first impacted country: the United States), Europe (first affected country: Germany), and the Eastern Mediterranean (first affected country, United Arab Emirates). Following that, the number of afflicted countries remained stable until week 9, when the number of nations reporting COVID-19 cases in the

Eastern Mediterranean area surged, reporting cases of COVID-19 jumped from four (17% of countries in the region) to 11 (48%). The percentage of countries and locales with confirmed cases of COVID-19 rose from 32% to 50% during weeks 9–11, and the first cases were recorded from Africa (the first affected country, Algeria). By March 10, 2020, just before WHO declared the COVID-19 outbreak a pandemic, 45 (83%) of 54 European countries and locations, 16 (70%) of 23 Eastern Mediterranean countries, and seven (64%) of 11 Southeast Asian countries had reported COVID-19 cases, whereas only 13 (37%) of 35 Americas countries and six (13 percent) of 46 African countries had reported cases. By week 11, only 13 (43%) of the 30 countries in the Western Pacific area had reported cases, with the majority of those without infections being isolated island republics with small populations. Since March 10, 2020, cases of COVID-19 have been reported in 99 countries and locations outside mainland China, with 75 (76%) identifying first-reported cases with a history of travel to an affected country (22 [22%] with travel to China, 11 [11%] with travel to Iran, 27 [27%] with travel to Italy, and 15 [15%] with travel to another country). In 34 (45%) of the 75 cases, information verifying travel occurred within the 14 days preceding symptom start was available. In the 14 days leading up to disease onset, 24 (24%) of first-reported patients had no travel history.

Moreover, the World Health Organization (2020) identified 28,276 confirmed cases with 565 fatalities worldwide as of February 6, 2020, including at least 25 countries. On January 30, 2020, the World Health Organization (WHO) pronounced a public health emergency of international concern (PHEIC) alert. There were several strict quarantine protocols in place and fever surveillance. The early death rates for hospital patients were projected to be 11–15%, but more recent statistics showed that the rates were 2–3%. Person-to-person transmissions are most

likely to occur via droplets and touch. Nosocomial infections have occurred in healthcare institutions, emphasizing the significance of effective infection control.

Furthermore, based on the data presented by the World Health Organization (2021), the rising trend in new global weekly cases continued during the week of November 8 to 14, 2021, with over 3.3 million new cases recorded, up 6% from the previous week. The Americas, Europe, and the Western Pacific regions all rose in new weekly instances compared to the last week, while the rest of the world saw constant or dropping trends. In a similar vein, the European Region had a 5% increase in new fatalities, while the rest of the world saw stable or decreasing trends. In the same week as the previous week, slightly under 50 000 additional fatalities were reported worldwide. Over 252 million confirmed cases and over 5 million fatalities have been recorded as of November 14. The global number of new COVID-19 cases climbed by 11% from the previous week to the week 20-26 December 2021, after a progressive increase since October; however, the number of new deaths remained unchanged from the last week. This equates to slightly under 5 million additional cases and more than 44,000 further fatalities. Globally, about 278 million cases and slightly under 5.4 million fatalities have been documented as of December 26, 2021. Following a slow increase since October, the global number of newly reported cases surged dramatically by 71 percent from the previous week to the week ending January 2, 2022. The number of further fatalities declined by 10%. There were slightly under 9.5 million new cases and almost 41 000 recent fatalities recorded during the last week. Globally, approximately 289 million cases and well over 5.4 million fatalities have been documented as of January 2. The incidence of weekly cases increased in all areas, with the Americas Region reporting the highest rise (100%), followed by the South-East Asia Region (78%) and the European Region (65%) (World Health Organization, 2022).

2.1.4 Local Statistics

The number of COVID-19 cases has reached a plateau, according to the Department of Health, owing to an increase in cases in some regions of the country due to increased travel during the holiday season. As of February 15, 2021, the country has a total of 550,860 COVID-19 instances, with 27,588 cases (or 5% of the total) still active. The active case rate is up from the prior report of 8-9 percent active cases. The country's recovery rate is also 92.9 percent, which is a favorable sign for the country's COVID-19 case management. While most regions are improving, the DOH keeps a careful eye on Regions VII, XII, and XIII, except for Agusan del Sur. The Department of Health has reported a slight increase (4%) in cases in Region 10 during the previous two weeks. Meanwhile, assume that stricter safeguards are not implemented. In that case, Cebu might reach over 300 cases each day by the end of February, according to the estimations made by the OCTA Research Group (Department of Health, 2021). In the Philippines, roughly 3.13 million individuals had been verified to be infected with the COVID-19 virus as of January 14, 2022. Nearly 2.82 million had recovered, while 52.8 thousand had died. The advent of the new Delta variant poses an even greater danger to the government's containment efforts as the country continues to cope with the economic and social impacts of the coronavirus (COVID-19) outbreak. A general community quarantine (GCQ) is still in effect in several locations around the country, with some heightened restrictions. Quezon and Cavite were the leading locations having the most COVID-19 cases as of early January 2022 (Statista Research Department, 2022).

2.2 Vaccine

2.2.1. Vaccine Development

Scientists have been doing various researches in creating a vaccine against this causative agent of Coronavirus Disease 2019 (COVID-19). Several years back, various forms of vaccine —such as protein subunit vaccines, virus-like particle vaccines, DNA vaccines, viral vector vaccines, whole-inactivated vaccines, and live-attenuated vaccines— for MERS and SARS-COV have been tested in preclinical trials. However, only a few have entered the clinical trials, and none was approved by the Food and Drug Administration (Li e*t al.*, 2020). From these researches, the scientists creating the vaccine have learned many lessons. Vaccine development for the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-COV-2) has become a top focus. The clinical development of the COVID-19 vaccine has been accelerated by performing the trials in parallel rather than in a linear sequence of steps (Li *et al.*, 2020). The vaccines for COVID-19 first entered the clinical trials before the preclinical trials, and many trials have adopted an integrated phase I/II or phase II/III approach to saving time (Lurie *et al.*, 2020). Due to this, some vaccines have become the leading player in vaccine trials. According to van Riel and de Wit (2020), nucleic acid vaccines and viral vector vaccines have shown more significant results against the virus due to their capability to be developed using sequence information.

The development of the pandemic prompted a quest to develop a vaccine that would provide herd immunity and reduce COVID-19's harmful consequences. Efforts to produce a vaccine are currently paying off. Some vaccine candidates have shown promising outcomes, and national rollouts have begun. The World Health Organization (WHO) listed the Pfizer COVID-19 vaccine (BNT162b2) for emergency use on December 31, 2020. The AstraZeneca/Oxford COVID-19 vaccine, manufactured by the Serum Institute of India and

SKBio on February 15, 2021, was followed by the Ad26.COV2.S, developed by Janssen (Johnson & Johnson) on March 12, 2021, and Moderna on April 30, 2021 (Francis *et al*., 2021). In the Philippines, the approved COVID-19 vaccines as of January 14, 2022, include Serum Institute of India: COVOVAX (Novavax formulation), Pfizer/BioNTech BNT162b2, Moderna mRNA-1273, Gamaleya Sputnik Light, Gamaleya Sputnik V, Janssen (Johnson & Johnson) Ad26.COV2.S, Oxford/AstraZeneca AZD1222, Bharat Biotech Covaxin, Sinopharm (Beijing) BBIBP-CorV (Vero Cells), Sinopharm (Wuhan) Inactivated (Vero Cells), and Sinovac - CoronaVac (Food and Drug Administration, 2022).

The vaccination program was expanded to include adolescents (12 to 17 years old). The only vaccines having EUA for this demographic are Pfizer and Moderna. The implementation began in the second week of October 2021. Similarly, surveillance of potential adverse events was expanded to encompass this population. The vaccination program presently uses seven (7) vaccines. CoronaVac, AstraZeneca's COVID-19 Vaccine, Sputnik V, Comirnaty's COVID-19 Vaccine Moderna, Janssen's COVID-19 Vaccine, and Sinopharm's COVID-19 Vaccine are among them. The government or the commercial sector either acquires vaccines or provides them through the COVAX facility. Vaccination for booster injections (third or extra doses) began on November 17, 2021, with the first recipients being healthcare workers. On November 22, 2021, this was followed by senior adults, immunocompromised individuals with comorbidities at high risk of acquiring severe COVID-19. Those aged 18 and over who have finished their vaccination doses may be eligible for booster injections, which began on December 3, 2021. Individuals who are eligible for booster shots must have completed their primary dosage series (at least six (6) months after getting the second dose of CoronaVac, COVID-19 Vaccine AstraZeneca, Sputnik V, Comirnaty, or COVID-19 Vaccine Moderna, or three months for

Janssen COVID-19 vaccine). The interval between booster doses was reduced to at least three (3) months following the second dose of a two-dose vaccination on December 21, 2021, and at least two (2) months for a single-dose vaccine on December 21, 2021 (Food and Drug Administration, 2022).

Booster doses are provided when immunity and clinical protection in a vaccinated population that has finished a significant immunization series has declined below the appropriate rate over time. A booster dose's goal is to restore vaccination efficacy when it has been determined that it is no longer adequate (World Health Organization, 2021). Booster shots are the most effective approach to keep individuals safe. COVID-19 infection can be deadly, especially when new varieties emerge. As Omicron appeared, the booster dosage was meant to save the world (Chen, 2021). Booster vaccination has been approved by regulatory authorities in a number of jurisdictions, and it has been included to the product labeling of BNT162b2, mRNA 1273, and Ad26.COV2.S. Moreover, booster dose clinical trial data for ChAdOx1-S [recombinant] and CoronaVac, COVID-19 immunization BIBP, BBV152, and NVX-CoV2373 vaccines were provided. To date, all studies have revealed a significant anamnestic immunological response following the first immunization series that meets or exceeds peak antibody levels. However, there is insufficient evidence and follow-up to assess the kinetics and longevity of the response. Both homologous and heterologous booster regimens are immunologically successful. The vaccination efficacy of these heterologous regimens cannot be anticipated with high confidence based on the immune response since no credible predictor of protection has yet been established.Although follow-up time is still limited, vaccine efficacy statistics for a booster dosage are becoming more frequently available. Infection resistance, illness severity, and death have all improved in the trials (World Health Organization, 2021).

Numerous populations worldwide have already received their 1st and 2nd dose of COVID-19 vaccination. However, many individuals who have already received 1st and 2nd doses are still hesitant to receive booster shots. A study showed that nearly two-thirds of respondents, including individuals with comorbidities, were afraid that vaccination might be ineffective against new strains, necessitating booster doses; yet, only 14.3 percent of vaccine-hesitant respondents were willing to receive a hypothetical booster dosage (Pal *et al., 2021)*. Booster doses were introduced in the last quarter of 2021. The introduction of booster doses should be firmly evidence-based and targeted to the demographic segments most at risk of serious disease and those required to preserve the healthcare system. To date, research suggests that vaccination protection against serious illness decreases in the six months following the first series. The decline in efficiency against all clinical diseases and infections is becoming increasingly apparent. The need for acceptance and urgency among individuals with comorbidities is significant because the duration of protection against the Omicron and other variants of COVID-19 might be modified by the booster shots, which are currently being investigated. Evidence of diminishing vaccine efficacy, particularly in high-risk groups, necessitated the development of vaccination techniques tailored for severe disease prevention, including the targeted use of booster immunization (World Health Organization, 2021).

2.3 COVID-19 Vaccine

2.3.1 Mechanism of COVID-19 Vaccine

Wang et al. (2020) provide an overview of the types of vaccines against the COVID-19. Vaccines are classified into two: the traditional whole-pathogen vaccines and various new-generation vaccines. Traditional whole-pathogen vaccines include inactivated vaccines and live-attenuated vaccines. Inactivated vaccines are safer than live-attenuated vaccines since live pathogens are not present in the vaccine itself. However, the downside of this vaccine is that it can have lower immunogenicity and usually requires several doses to have memory cells. On the other hand, the live-attenuated vaccine works by introducing a mild infection that resembles the infection, which can lead to a strong immune response. However, just like other vaccines, live-attenuated vaccines have disadvantages. The main disadvantage of live-attenuated vaccines is their potential safety concerns. In comparison with the recombinant protein-based vaccines, live-attenuated vaccines have higher reactogenicity, which can potentially infect immunocompromised people or reverse back to virulent strain.

Wang *et al.* (2020) also mentioned the other classification of vaccine, which is the New-Generation vaccines. New-generation vaccines include recombinant protein vaccines, viral vector-based vaccines, bacterial vector-based vaccines, plasmid DNA vaccines, messenger RNA vaccines, and trained immunity vaccines. Recombinant protein vaccines, like the NVX-CoV2373, use a part of the whole protein or a protein fragment. In NVX-CoV2373, the vaccine uses Matrix-M as an adjuvant. Another is the Viral Vector-based vaccine which lacks the ability to reproduce since the antigen is cloned. This vaccine imitates the infection, which produces a stronger cellular immune response. There is a currently developing vaccine that

follows this type of vaccine using the AAV vector. Another type of vaccine is Bacterial Vector-Based Vaccines which use non-pathogenic lactic acid bacteria (LAB). bacTRL-Spike of Symvivo uses this type of vaccine. Additionally, plasmid DNA vaccines are also classified as one of the new-generation vaccines. This vaccine has safer since it eliminates the use of live viruses. However, this vaccine has a low transfection efficacy, which requires transfection modalities. INO-4800 vaccine of Inovio follows this type of vaccine. Another type of vaccine that is classified as a new-generation vaccine is the messenger RNA vaccine like the mRNA1273 of Moderna. This vaccine eliminates the risk of disease transmissions from the manufacturing facility since it is fully synthetic. The last vaccine that is classified as a New-generation vaccine stimulates the innate immune system, which provides protection to other unrelated pathogens. This vaccine is the Trained Immunity-Based Vaccines. An example of this vaccine is the Bacille Calmette-Guerin (BCG) which is under clinical evaluation for its ability to induce trained immunity against COVID-19.

ACE2 transmits SARS-CoV-2 infection. On the other hand, this receptor is essential in both innate and adaptive immune responses because it modulates antigen-presenting antigen cells that interact with T cells to initiate defense responses (Bernstein *et al*., 2018). This transmembrane protease receptor is involved in the conversion of angiotensin II (Ang II) to angiotensin 1-7 (Ang 1-7), which results in diuresis/ natriuresis, the preservation of renal function, and the reduction of cardiac and vascular remodeling. ACE2 plays a crucial role in the nervous system, and its disturbance can result in neurological diseases (Haidere *et al.*, 2021). Moreover, when someone is vaccinated, they are almost certainly protected against the disease being targeted. However, not everyone is eligible for vaccination. People with underlying health conditions that impair their immune systems (such as cancer or HIV) or who have significant

sensitivities to specific vaccine components may not be able to receive certain immunizations. If they live in a setting where others have been vaccinated, these people can still be protected. When a high number of local residents in a community are immunized, the virus has a hard time spreading since most of the people it comes into touch with are immune.Hence, the more vaccinated people, the less likely it is that those resistant to vaccines will be exposed to hazardous diseases. This is referred to as natural herd immunity (World Health Organization, 2020).

2.4 Vaccine Prioritization

The SARS-CoV-2, also known as the COVID-19 pandemic, can be combated by using vaccinations to fight off the virus. As vaccinations are delivered worldwide, there is a controversy about who should be the first to be vaccinated. Frontline healthcare professionals and populations most at risk, such as those aged 60 and older and those with coexisting health problems, should be prioritized (Bono *et al.*, 2021). Individuals with comorbidities or health conditions that put them at considerably higher risk for complications or death are prioritized to Stage II according to the overarching public health policy, which prioritizes the direct reduction of mortality and morbidity (World Health Organization, 2020).

Based on a study conducted by Yelin *et al.* (2021), the results of a demographic and clinical match-control comparison between vaccinated and unvaccinated individuals of infection and disease occurrences found similar effectiveness to that of the randomized-control study, and they revealed a reduced vaccination efficacy in individuals with multiple comorbidities. For patients 16-80 years old, vaccine effectiveness is essentially similar, although significantly reduced effectiveness is found in people over 80 years old (81-90 years old). Females and males

also had similar vaccine effectiveness on average, but comparing the sexes shows that men have a lower efficacy for the elderly. They have also discovered that certain long-term illnesses, like high blood pressure, chronic obstructive pulmonary disease, immunosuppression, and type 2 diabetes, have an inverse influence on vaccine efficacy. These data have supplemented previous findings showing diminished vaccine efficacy for diabetic patients and those with numerous comorbid diseases. They have also developed a methodology that can assess these comorbidities for immunosuppressed patients, even if they were not included in the clinical trial. Additionally, their analysis proves that some comorbidities (primarily heart disease and high blood pressure) show sex-specific interactions, with women facing diminished efficacy for these. Even for persons with weakening conditions, the vaccine is still very effective (Yelin *et al.*, 2021).

The Philippines has a COVID-19 vaccination priority system, which should be recognized. Notably, one of the Philippines' priority categories is persons with comorbidities under the A3 category, behind only healthcare personnel under the A1 category and the aged population (senior citizens) under the A2 category. Certain health disorders, such as heart and lung illness, are classified and prioritized higher than others, such as mental health issues (Alibudbud, 2022). The study will focus on individuals under Category A3, who are adults 18 to 59 years old with comorbidities who do not fit into A1 or A2 category (Department of Health, 2021).

2.5 Comorbidities

2.5.1. Prevalence of Comorbidities

The risks of contracting SARS-CoV 2 have been observed to vary significantly depending on age and the existence of underlying comorbidities. COVID-19 causes life-threatening symptoms such as acute respiratory distress syndrome (ARDS), acute kidney injury (AKI), acute coronary syndrome (ACS), and organ failure or impairment. Patients who are old (>60) and/or have one or more comorbidities appear to be more susceptible to these severe outcomes. According to preliminary data from Wuhan, China, 32% of COVID-19 positive individuals had underlying conditions such as cardiovascular disease (CVD), hypertension (HTN), diabetes, and chronic obstructive pulmonary disease (COPD). Following that, a Chinese study conducted on the clinical features and outcomes of COVID-19 patients indicated that most of those diagnosed had one or more coexisting diseases. Based on the United States data, individuals with severe comorbidities such as CVD, HTN, diabetes, COPD, CKD, and cancer appeared to be at higher risk for COVID-19 severe symptoms than those without these diseases. Polymorbidity has been linked to the need for hospitalization and intensive care unit (ICU) admissions in around 20% of patients, and based on the record, the case fatality rates reached over 14%. Overall, composite evidence shows that those with a chronic underlying disease may have a 10-fold higher risk of severe outcomes than those with no comorbidities. Health professionals also think that the presence of any underlying comorbidity increases the odds of a severe clinical outcome, including death, in those who have COVID-19. Comorbid diseases are clearly more common (57.7% vs. 42.3%) amongst COVID-19 patients, according to an examination of data obtained from locations most affected by COVID-19. Furthermore, comorbidity appears to be more common among patients who passed away due to the said virus.

84.1% of these people had comorbidities. Given the increased risk among people with coexisting diseases, careful consideration must be given to targeted intervention efforts for this vulnerable population (Bajgain *et al*., 2021).

The distribution and development of efficacious COVID-19 vaccines for the most vulnerable people are fraught with difficulties. Immunosenescence and comorbidities are two reasons why vaccines may be less effective in older people. Furthermore, people in low and average income (LMICs) nations struggled from concurrent infections, malnutrition, microbiome dysbiosis, and environmental enteropathy leading to immune down-regulation that could eliminate immunological responses to vaccines and also confront similar obstacles. For those most susceptible, vaccination target population selection for COVID-19 vaccines sought to effectively protect the most at-risk people while indirectly safeguarding those vulnerable through herd immunity. Aging brings with it an increase in case fatality rates, and aging is linked with several comorbidities. Providing children vaccines may help protect the elderly by minimizing illness from influenza, as was demonstrated in the past. In the U.S., the overall death rate for ages 85 and older is 183 times that of people aged 15 to 24, 60 times that of people aged 75 to 84, and 24 times that of people aged 65 to 74. Furthermore, these are the populations that have a decreased vaccine efficacy against diseases like influenza. Despite having no evidence of symptomatic virus infection, COVID-19 vaccinations may be less effective in the elderly because of the possibility of asymptomatic viral transmission (Koff *et al*., 2021).

During the phase 3 trials of vaccination, systemic adverse effects were found more common among adult individuals with comorbidities. The average age of those who used the app during the research period was 50.6 years (AD, 19.2), with 4.8% working in healthcare. For both the Pfizer-BioNTech (OR, 2.19; 95 percent CI, 2.14-2.24; P.0001) and Oxford-AstraZeneca

vaccines (OR, 1.99; 95 percent CI, 1.96-2.03; P.0001), the proportion of people reporting at least one systemic adverse effect after receiving the first dose was significantly higher among those aged 55 and younger (OR, 2.19; 95 percent CI, 2.14-2.24; P.0001) (Menni *et al., 2021)* . Moreover, another study showed that significant vaccination apprehension is still present in those with substantial comorbid illnesses. The researchers collected responses from 21,943 of the 996,500 members of the Inspire, health community who the researchers asked to participate (2.2 percent). Respondents came from 123 countries (United States: 16,277/21,943, or 74.2 percent), were 56-65 years old on average, well educated (college or postgraduate degree: 10,198/17,298, or 58.9%), and had a variety of political views. Cancer was reported by 27.3 percent of respondents (5459/19,980); autoimmune disorders by 23.2 percent (4946/21,294); and chronic lung diseases by 35.4 percent (7544/21,294). COVID-19 vaccination apprehension was found in 18.6% (3960/21294) of respondents, with 10.3% (2190/21294) expressing that they would not, 3.5 percent (742/21,294) stating that they would probably not, and 4.8 percent (1028/21294) saying that they were unsure. Cancer patients were 13.4% (731/5459), autoimmune disorders were 19.4% (962/4947), and chronic lung illnesses were 17.8% (1344/7544) (Tsai, 2022).

2.5.2 Most Common Comorbidities in COVID-19 Patients

In a study by Fathi *et al*.(2021), the prevalence of hospitalized patients with comorbidities was 45.98% in a sample population of 121,437. The most common comorbidities in their study included hypertension (28.30%), diabetes (14.29%), cardiovascular disease (12.30%), and chronic kidney disease(5.19%). Similarly, according to the study by Sanyaolu *et al.* (2020), hypertension was the most common comorbidity (15.8%), followed by cardiovascular

and cerebrovascular diseases (11.7%) and diabetes (9.4%) in a sample population of 1,786 patients. Given the overall prevalence of hypertension and cardiovascular conditions in most COVID-19 patients, the researchers expected that the high prevalence of these comorbidities will also be reflected in a Philippine setting.

2.5.3 More Severe Cases and Poor Disease Progression in Patients with Comorbidities

In the current world situation, patients with comorbidities who have been infected with COVID-19 are potentially more at risk of developing a worse case of the disease and a worse prognosis. Poorer outcomes and disease progression have been found in cardiovascular conditions, one of which is chronic obstructive pulmonary disease or COPD, which showed a four-fold increase in mortality in patients with this condition (Sanyaolu *et al*., 2020)**.** According to a study by Osibogun *et al*. (2021), hypertension, diabetes, renal disease, cancer, cardiovascular disease, and HIV are risk factors for death, and patients with at least 2 of the comorbidities mentioned above are 4 times more likely to experience death.

2.6 Vaccine Acceptance

2.6.1 Factors affecting Vaccine Acceptance

Initially, the vaccination program against COVID-19 was planned to start as early as February 2021 by the Philippine government (Bautista *et al*., 2021). The program aims to achieve herd immunity against COVID-19, wherein the target number of vaccine recipients is

50-70 million Filipinos and the target vaccine doses to be acquired is 148 million. A study conducted by Bautista *et al*. (2021) presents the prevalence of COVID-19 vaccine acceptance and its indicators in three cities of the National Capital Region (NCR), namely Caloocan, Malabon, and Navotas. These cities were known to have the lowest recorded cases of COVID-19 in NCR. Based on the conducted internal survey of the local governments, results showed that Navotas City garnered a vaccine acceptance rate of 81%, Malabon City with 83%, and Caloocan City with 82%. Overall, 71% of the 137 respondents will get vaccinated if COVID-19 vaccines become available, and if proven to be safe and effective, 82% will take the vaccine. Vaccine acceptance was heavily influenced by vaccine safety and effectiveness, cost and availability, preference, and awareness. Vaccine safety and effectiveness appeared to be the most crucial factor, as the higher the percentage of vaccine safety and efficacy is proven, the more the public will be persuaded to get vaccinated. This is due to the public's primary concern, including potential side effects and allergic reactions acquired upon vaccination. Moreover, people will most likely get vaccinated if vaccines and inoculation programs are freely given and are widely conducted across cities. This study also revealed that the availability of the public's preferred vaccine also contributed to a higher vaccine acceptance rate. Based on the study, the respondents mostly preferred Pfizer (32%). This is followed by AstraZeneca (15%), then mRNA-1273, which are Moderna, BARDA, NIAID (10%), and lastly, Sinovac (9%). Awareness of the public of the different brands of the vaccine was as follows: Pfizer (59%), Moderna (40%), AstraZeneca (37%), and Sinovac (33%). Improved vaccine awareness through effective communication strategies will also play a significant role in persuading the public. Pro-vaccination principles should be promoted by positive influencers such as immediate family members, medical experts,

religious leaders and organizations, and business sectors to increase encouragement and initiative to get vaccinated.

In the study by Mohamed *et al.* (2021), 64.5% of the respondents agreed to accept the COVID-19 vaccine. 64.5% of the total respondents who have indicated that they are willing to accept the vaccines are women. Moreover, in their study, the younger generation has been more accepting than the older generation. This results in 51.8% of the respondents strongly agreeing with their question about the vaccine acceptance coming from the age bracket of 18 to 29 years old. This is also supported by Elgendy & Abdelrahim's (2021) study, which stated that females have been more accepting and showed interest in sharing information about the COVID-19 vaccine.

There are also studies that have proven that knowledge is related to vaccine acceptance. In the study of Walker *et al*. (2021), they have stated that low knowledge about the vaccine becomes one of the negative predictors of vaccinations. They also revealed that an inadequate amount of information and knowledge about the vaccine can be affected by a person's decision to accept the vaccine. They have suggested that in order for a learning population to have such misconceptions about vaccinations, proper education must be provided immediately and on an ongoing basis to clarify or eliminate these misconceptions. These acts would eventually spread and educate participants' peers and family members who hold similar beliefs.

A study by Paul *et al*. (2021) has also proven that practicing health protocols during the pandemic is also related to vaccine acceptance. Negative attitudes regarding vaccines and apprehension or refusal to undergo immunizations are critical roadblocks to effectively managing the COVID-19 pandemic in the long run. Poor compliance with government COVID-19 guidelines or health protocols are one of the skeptical attitudes towards COVID-19 vaccination,

together with individuals from ethnic minority origins, with lower levels of education, and have lower yearly income. The researchers rated compliance with government COVID-19 criteria on a scale of 1 (no compliance) to 7 (full compliance) in the study's measurement section. They assessed this as a binary variable indicating higher (6-7) as poorer (1-5) compliance. The study results have shown that both vaccination reluctance and vaccine refusal were predicted by poor compliance with COVID-19 guidelines or health protocols (Paul *et al., 2021)*.

Danabal *et al*. (2021) stated that half of the respondents have positive attitudes toward the COVID 19 vaccines. This was proven that attitude is a factor in vaccine acceptance. The key factors that influenced the respondents' reticence were belief in the efficiency of vaccines, distrust in the medical system and vaccinations, fear about vaccine detrimental responses, and preference for natural immunity over vaccines, according to them. Many of the respondents prefer natural immunity over the vaccine since they have stated that increased vaccine awareness and reassurance that vaccine-mediated immunity is safer than natural exposure to the pathogen is essential, especially when the infection has serious implications. The respondents were divided into four groups and classified them according to their unique characteristic attitudes toward the vaccines. People belonging to “Preference for natural immunity, not vaccines and low concern for adverse effects” have been shown to have a high vaccine acceptance compared to other groups. Only 3.7 percent have stated that they would probably not get vaccinated, and 2.4 percent were doubtful.

Moreover, for the sources of information, Piltch-Loeb *et al.* (2021) have discovered that traditional sources of information, particularly national television, national newspapers, and local newspapers, improved the likelihood of vaccine uptake, proving that the sources of information is a factor for vaccine acceptance. Individuals who received information from conventional

media rather than social media, or from both traditional and social media, were more inclined to accept the vaccine. Furthermore, the study of Handy *et al.* (2017) stated that access to disinformation via the media and anti-vaccine campaigning is a significant contributing factor to hesitation in the United States and other high-income countries with comprehensive immunization systems. The participants have also stated that there was insufficient communication about vaccines available. Syed Alwi *et al.* (2021) have also stated that lack of information regarding the vaccine has been one of the factors why the Malayans have been hesitant in accepting the vaccine, which garnered a percentage of 80.9 percent.

Mechanism of action's information, on the other hand, has been recommended to be shared to the public as it contributes to their attitudes in accepting the vaccine. Research from Al-Qerem and Jarab (2021) has stated that increasing the population's understanding of vaccines and their associated mechanisms of action via various awareness-raising strategies may overcome the undesirable attitude barrier. This proves that the mechanism of action should be included in the factor that contributed to vaccine acceptance.

2.6.2. Degree of Acceptance among Individuals with Comorbidities

It was shown in a study conducted by Dabla-Noriss *et al*. (2021) that vaccine acceptance is higher with older individuals. Age is a vital driver of vaccine intent. This is because COVID-19 mortality and morbidity increase rampantly with age. Thus, older people are more willing to get inoculated against COVID-19. Public health focuses on giving awareness and building trust among older individuals as they are classified as one of the top list priorities for vaccination against COVID-19.

According to Alqudeimat *et al.* (2021), 53.1% of the total adult research participants were willing to get vaccinated against COVID-19 once a vaccine was available in this study. Given the scope of the COVID-19 pandemic, such a degree of acceptance is alarmingly low. According to previous estimations, the COVID-19 herd immunity barrier varies by country, with an average threshold of around 67 percent. Furthermore, their findings revealed that individuals who said vaccinations, in general, protected against serious diseases were more inclined to accept COVID-19 immunization (71.2%) than those who were unsure (30.5%) or did not believe vaccines give protection (10.5%). Furthermore, those who stated that vaccinations had health implications were the least receptive to COVID-19 immunization (28.9%), compared to those who stated that vaccines have no health concerns (82.5%).

The existence of at least one underlying chronic illness indicated a decreased likelihood of wanting to get vaccinated. It concerns that there is a decreased acceptability among those with chronic diseases who are most in need of vaccines (Bono *et al.,* 2021). Furthermore, the study by Mohamed et al. (2021) has stated that people with comorbidities should be the ones who have been vaccinated first because they have a greater risk of mortality compared to those who are healthy ones. Information dissemination should also be done in this population since there are still people who have comorbidities who have not yet been vaccinated due to the vaccine's possible side effects.

According to the most recent data, around 14.5 million Filipinos have been diagnosed with diseases. Suppose the individuals have a previous diagnosis, a medical certificate, or a prescription; individuals may be categorized under the A3 group. (Montemayor, 2021). As of January 11, 2022, the Department of Health (DOH) data shows that the population of adults with comorbidities is not yet 100% vaccinated. It was shown in the data that 7,710,340 adults with

comorbidities received the first dose, 8,786,813 completed the dose, and 927,089 who have already received the booster dose (Department of Health, 2022). The data showed that only around 60% of Filipinos with comorbidities are fully vaccinated, and 6% are boosted. Hence, further studies were still necessary.

2.7 Vaccine Urgency

The United States required a national plan for promoting COVID-19 vaccinations that combine Operation Warp Speed's urgency and dedication with cutting-edge behavioral research and social marketing tactics to boost COVID-19 vaccine confidence and acceptance across a varied audience. Rebuilding faith in the rigor of vaccination studies and the integrity of the approval process is critical to any effective strategy. According to the literature on vaccination adoption, simple, easy-to-understand language; a message that stresses science over politics; celebrity and opinion leader endorsements; and an emphasis on facts and evidence over myths and disinformation. To avoid negative publicity from unprepared individuals, the knowledge on the COVID-19 vaccine must focus on rebuilding trust in communities that have previously experienced medical exploitation, unconsented experimentation, and social and economic marginalization. The individuals who were getting vaccinated should also be warned about transient adverse effects of the vaccines (Volpp, 2021).

By their very nature, human beings were attuned to signs about which actions, attitudes, and values were generally accepted. This focus is important because it frequently comes naturally, and people typically underestimate how social standards impact their behavior. Observing what others do may often indicate the best course of action because common actions

indicate that they were correct, successful, and garner socially acceptable. It is convincing that the ability to change one's conduct to fit in with one's group and community is critical for social functioning in society. These inclinations can be beneficial or destructive since social norms can promote both good and hazardous habits. Due to this, when individuals realize that most people desire to get the COVID-19 vaccination, they may feel more certain that their conduct is appropriate and beneficial and that following suit is a good choice (Sinclair & Agerstrom, 2021). Based on a study by Lau *et al*. (2010), about 30.7% of the participants believed that there would be a lengthy waiting period before being given the vaccine. The author also stated that 77% of the participants would take the A/H1N1 vaccine if they desired, while 19.9% of those participants thought that they would not be able to receive the vaccine due to their financial situation.

According to public health specialists, vaccine uptake with extremely high levels (70-90%) can result in the eventual goal of achieving the herd immunity required to go back to usual day-to-day life. Certain economists have proposed paying individuals to acquire the COVID-19 vaccine to combat vaccine skepticism and promote vaccination urgency and adoption. Deposits in employer-sponsored pension funds, cash, and gift cards are among the incentives that some employers plan to give (or currently providing) to their employees to raise vaccination rates. The willingness to pay economic concept has been frequently utilized to analyze individual vaccination acceptance and demand (Carpio *et al.*, 2021).

According to the result of the HBM, perceived susceptibility, perceived advantages, and action signals (or practices) all have a statistically significant influence (p 0.05) on the intention to take COVID-19 vaccination. Perceived obstacles and signals to action were linked to a level of urgency to get the available COVID-19 vaccination among HBM factors. The odds of getting

vaccinated in 3 months rather than immediately rose 1.25-fold (OR = 1.25, 95 percent CI 1.03–1.51), whereas the odds of getting vaccinated within a year rather than immediately increased 1.62-fold (R = 1.62, 95 percent CI 1.20 2.19). There was a 40% drop in the likelihood of getting vaccinated within a year rather than immediately for each unit increase in perceived practices (OR = 0.60, 95 percent CI 0.37–0.96) (Shmueli, 2022).

CHAPTER III:

RESEARCH METHODOLOGY

3.1 Research Method and Research Design

A quantitative descriptive-correlational research design was implemented through a cross-sectional survey to give an accurate and systematic interpretation of the levels of acceptance and urgency of the COVID-19 vaccine among comorbid adults. A cross-sectional survey was conducted among comorbid adults to identify the factors that influenced the level of acceptance and urgency of COVID-19 vaccines. The survey was disseminated to respondents through Google forms on an online platform. The researchers first conducted pilot testing before administering the questionnaire to the respondents. Before implementing the study, a pilot study was employed to identify potential issue areas and limitations in the research instruments and procedure (Hassan *et al.*, 2006). Furthermore, it can also assist members of the research team in becoming acquainted with the protocol's procedures and in deciding between two competing study approaches, such as employing interviews rather than a self-administered questionnaire. In this study, the researchers conducted the pilot testing to (1) develop the integrity and reliability of the survey questionnaire, (2) assessed the possible issues and risks that the study might have, and (3) assessed the comprehensibility of the survey tool, and lastly, (4) determined if the study is feasible. The researchers first conducted a study on a small scale to achieve these goals. The target sample size for the pilot testing was at least 25 respondents. After which, Cronbach Alpha and KMO were computed to determine the validity of the questions.

The estimated sample size of the study was 385. The sample size was based on the computation using Raosoft and Cochran, which were the recommended sample size calculators

by the statistician. For both sample size calculators, the researchers used a 95% confidence level and a 5% margin of error for the computation. The population size used was 8,389,500, which was the projected population of Metro Manila (ages 18-59 years old) in 2022. The projected population of Metro Manila was utilized since there was no data available regarding the population size of adults with comorbidities in Metro Manila. The data on the population of Metro Manila and its districts were obtained from the 2022 Epidemiology Bureau Reports of the Department of Health. Additionally, the researchers also incorporated a proportion of 0.5, a confidence interval of 0.05, an upper limit of 0.55000, a lower limit of 0.45000, a standard error of 0.02552, and a relative standard error of 5.10 into the computation. However, considering that the researchers were restricted by the limitations brought about by the COVID-19 pandemic, the study statistician recommended that the researchers may gather at least 100 respondents to proceed with the data analysis. The computed minimum number of respondents was based on the statistical tool that was used, which was the Partial Least Square- Structural Equation Model (PLS-SEM), and the number of items (in Likert scale format) in the study tool, which was fifty (50). The researchers computed the target number of respondents per district by getting the percentage of the population per district based on the population of the citizens from Metro Manila. This percentage was then multiplied by the study's sample size, which was 385. The nonprobability sampling technique, specifically purposive stratification, was used in choosing the respondents since the targeted population of the study was 18 to 59-year-old adults with comorbidities. The participants were categorized according to their sex and according to the following age groups: 18-24, 25-31, 32-38, 39-45, 46-52, and 53-59. Moreover, the study participants were further divided based on the districts of Metro Manila, namely District 1, District 2, District 3, and lastly District 4. The participants had to choose the demographic

characteristics that apply to them in the first part of the survey questionnaire. After which, the participants were categorized based on their chosen demographics, and the researchers analyzed the data provided. The researchers employed statistical techniques to process, analyze, and interpret the researchers' data and assess whether the knowledge, sources of information, attitude, and practices had an effect on the level of acceptance and urgency. Furthermore, it was also used to process, analyze, and interpret the researchers' data and assess whether the vaccine preference based on the mechanism of action affected the level of acceptance.

The research design of this study was quantitative descriptive-correlational research. It was quantitative research because the researchers measured the levels of acceptance and urgency among comorbid adults concerning the study's dependent variables. According to Nassaji (2015), a descriptive method characterizes phenomena and their features. This study was primarily concerned with what happened than how or why it happened. Thus, the researchers utilized a descriptive method since the researchers characterized the levels of acceptance and urgency of people with comorbidities towards the COVID-19 vaccines. Siedlecki (2020) also described descriptive research as a design that employs various methods to investigate one or more variables. With this, the researchers used the descriptive research design since the researchers probed two independent variables: the levels of acceptance and urgency. Furthermore, the researchers used a survey questionnaire to collect data. Thus, a descriptive method was the appropriate research design to use. Moreover, the researchers also utilized the correlational method. Descriptive correlational investigations described the variables and the natural interactions between and among them (Sousa *et al*., 2007).

3.2 Research Locale

Non-probability sampling technique, specifically purposive stratification, was utilized in this study. This is a technique for selecting from a population in which the respondents are chosen by the researchers based on the presence of comorbidity. The participants of the study were divided according to their respective locations in Metro Manila. The areas in Metro Manila were divided into districts in Metro Manila, namely, District 1, District 2, District 3, and lastly District 4. District 1 is the Capital District and only includes the City of Manila. District 2, the Eastern Manila District, is composed of the cities Mandaluyong, Marikina, Pasig, Quezon City, and San Juan. District 3, the Northern Manila District, consists of Caloocan, Malabon, Navotas, and Valenzuela. District 4, the Southern Manila District, is composed of Las Piñas, Makati, Muntinlupa, Parañaque, Pasay, Pateros, and Taguig. The participants were further categorized according to their sex and according to the following age groups: 18-24, 25-31, 32-38, 39-45, 46-52, and 53-59.

3.3 Research Participants of the Study

The study participants strictly included Filipino adults aged 18-59 years old who have been diagnosed with at least one type of comorbidity (presence of two or more diseases). Individuals who were categorized under A3 (Persons with Comorbidities) in the vaccine prioritization of the Department of Health were also accepted as respondents of this study. These individuals have at least one medical condition or disease. They are referred to as “Persons with Comorbidities” despite having only one disease due to the possibility of contracting COVID-19. This would serve as the primary disease and coexist with one or more medical condition/s or disease/s. This was validated through proof of medical prescription, a certificate from a certified

physician, medical records, vaccination cards, or any other documents that may prove that they are under the A3 category in the vaccine prioritization. Moreover, the research participants should also be living within the cities/municipalities of Metro Manila (Manila, Mandaluyong, Marikina, Pasig, Quezon, San Juan, Caloocan, Malabon, Navotas, Valenzuela, Las Piñas, Makati, Muntinlupa, Parañaque, Pasay, Pateros, and Taguig). The target population for the study was a statistically acceptable number of respondents to ensure that there was sufficient data for analysis and results for the discussion. The estimated sample size for this study was 385. This was based on the computation using Raosoft and Cochran sample size calculator recommended by the statistician. The target number of respondents per district was computed by getting the percentage of the population per district based on the population of the citizens from Metro Manila. Since District 1 had a population of 1,159,759, it covered 14% of the population of Metro Manila therefore, the researchers tried to gather at least 54 respondents from this district. District 2 had a population of 3,029,870 which was 36% of the population of Metro Manila, therefore, 139 respondents was the target for this district. District 3 had a population of 1,836,826 or 22% of the population of Metro Manila, which, when derived from the formula, gave a value of 84 as the target number of respondents. Lastly, District 4 had a population of 2,363,045 which covered 28% of the population of Metro Manila, therefore, 108 respondents were targeted for this district. The researchers also used a stratified purposive sampling technique with the districts in Metro Manila, sex of the respondents, and age groups of the respondents (18-24, 25-31, 32-38, 39-45, 46-52, 53-59) as the stratification.

3.4 Research Tool

For this study, survey questionnaires were utilized. According to Cleave (2021), a survey is a process of posing questions and analyzing responses to gather information about others. The use of questionnaires will characterize surveys, but the questionnaires will be just one component of the survey. Researchers regard the questionnaire as a fundamental data-gathering tool for analyzing a target group. When it comes to conducting research, the questionnaire offers more structure than the interview, which can help get a more successful grasp on the respondents' answers. In this study, an online questionnaire was utilized to provide a wide range of benefits in research, primarily for the researcher's feasibility in conducting surveys. Unlike face-to-face, over-the-phone, or in-person questionnaires, online questionnaires have no concern about time, labor, paper, printing, phone, or postage expenses, making them much more cost-effective. The internet allows quickly increasing the size of an online survey's audience and singling out respondents anywhere. When it comes to delicate matters, online questionnaires are a valuable tool, as they enable anonymity compared to other methods such as face-to-face and telephone interviewing. Providing anonymity will make subjects more comfortable and encourage them to react honestly, which will be ideal when conducting surveys regarding corporate culture. Furthermore, the best aspect of the online survey will be that respondents can set their timetable and place to do the survey. Providing additional time to complete the survey and the option to start and finish it at any time will increase response rates.

The study's questionnaire is a combination of adapted questions from related research journals and questions created by the researchers. The researchers have sent emails to the authors of the respective journals to notify them about the utilization of their survey questionnaires. To

check the reliability and confirm the study questionnaire's validity, the researchers submitted it to the University of Santo Tomas Research Ethics Committee or Ethics Review Committee.

The survey questions that the researchers utilized were close-ended since the researchers restricted the respondents to a specified set of answers. The questionnaire was in bilingual (Filipino and English) format and was divided into three (3) sections: demographics, vaccine acceptance, and vaccine urgency. Researchers used this to obtain quantitative data and determine the levels of acceptance and urgency of the COVID-19 vaccine among adults with comorbidities in Metro Manila.

Physical surveying was not feasible due to the pandemic. Hence, the researchers conducted surveys for this study using Google Forms, a survey administration program that comes as part of Google's free, web-based Google Docs Editors package. The researchers used the application due to its easy use and highly customizable features, allowing collaborations with the co-researchers. Furthermore, the researchers can easily disseminate it, and through the utilization of Google forms, researchers were able to receive an email notification once the responses have been made. Furthermore, the data gathered was automatically recorded into a spreadsheet. Studies that rely on survey technologies to collect data should ensure the privacy and confidentiality of the respondents. The researchers stored all data in a secured Google Drive, including proof of comorbidity and vaccination cards. The data collected will be maintained for no longer than three years. After that, the researchers will reformat Google Drive. The researchers will permanently destroy the data-gathering technology used in this study, informing the participants. The informed consent clarified that the participants' personal information was kept private throughout the research and afterward. The monitors and auditors of the study, the FOPREC Ethics Review Panel, and the regulatory authorities had direct access to the

participants' vaccination cards, medicine prescriptions, medical certificates, and hospital records as proof of comorbidities for purposes only of verification of data. It is expected that the findings of this study will be published in scientific journals, discussed in professional forums, and credited by other researchers. However, no information which may be used to identify the responders were made public. The informed consent included a brief introduction to the study's aims, an explanation of the researcher's subject selection, methodology, and the importance of their responses to the study's success.

Initially, the questionnaire was divided into three sections, and each section focused on a specific variable. Every section contained questions that determined the respondents' level of acceptance and urgency toward the COVID-19 vaccine.

The first section of the questionnaire proper was the demographic profile of the respondents, which included the following: name (optional), age, sex, type of comorbidity, email address, contact number (optional), location, vaccination, and booster status. The research participant's name was optional since the researchers wanted the respondents to be comfortable disclosing their data. The necessary documents were also collected in this portion. One of the required documents was the medical abstract/certificate or the medical prescription that proved their comorbid condition. If they were already vaccinated and/or had already received a booster shot, a photo of the vaccination card was also collected in the first section of the questionnaire proper. The demographic information allowed the researchers to understand the background of the research participants better. Furthermore, it allowed the researchers to determine and verify if the participants were a representative sample of the study's target population.

The second section of the questionnaire proper consisted of the questions regarding the vaccine acceptance of the respondents. This section was divided into five parts: Knowledge, Sources of Information, Attitude, Practices, and, lastly, Preference of Vaccine Based on the Mechanism of Action. These portions helped the researchers determine the level of acceptance of those people with comorbidity based on the answers.

The first portion, which was the Knowledge, consisted of questions that assessed the level of knowledge of the research participants. This included statements that can determine if the respondents were well-informed about the significant facts about COVID-19 and COVID-19 vaccinations. These were answerable by strongly agree, agree, disagree, or strongly disagree. This section aimed to discern if there was a relationship between the knowledge of the research target group and the level of vaccine acceptance. The questions from this section were adapted from the study of Walker *et al.* (2021) entitled "Vaccine Acceptance and Its Influencing Factors: An Online Cross-Sectional Study among International College Students Studying in China." Figure 3 in Appendix G depicts the permission of the authors to the researchers to use the questionnaire from their research.

The next portion of the second section was for the Sources of Information. The respondents' sources of information were relevant to this study as the researchers had figured out the factors that affect their acceptance and level of urgency toward the COVID-19 vaccine. The sources of information were included since the researchers determined where their information comes from and if it affects their levels of acceptance and urgency towards the COVID-19 vaccine. The respondents chose whether they strongly agreed, agreed, disagreed, or strongly disagreed with the given statements. This part of the questionnaire helped the researchers determine if the respondents' sources of information affected the level of acceptance and urgency

toward the COVID-19 vaccine. The researchers adapted the statements of this part from the study of Muqattash, Niankara, & Traoret (2020) entitled "Survey data for COVID-19 vaccine preference analysis in the United Arab Emirates." Figure 4 in Appendix G shows the permission of the authors to use the questionnaire from their research.

The third portion of the second section was about the Attitude of the respondents towards vaccines, getting vaccinated, and the COVID-19 vaccine itself. This portion consisted of ten statements wherein the respondents chose whether they strongly agreed, agreed, disagreed, or strongly disagreed with the given statements. The researchers adapted the statements from the study of Danabal, Magesh, Saravanan, & Gopichandran (2021) entitled "Attitude towards COVID 19 vaccines and vaccine hesitancy in urban and rural communities in Tamil Nadu, India - community-based survey". The authors have given their permission to use the questions from their survey tool, as seen in Appendix G, Figure 5. This part determined if the respondents' attitudes affected the level of acceptance and urgency.

The fourth portion of the second section consisted of statements that determined the preventive measures that the respondents practice to combat COVID-19. These were adapted from Abdelrahim & Elgendy's (2021) study entitled "Public awareness about coronavirus vaccine, vaccine acceptance, and hesitancy." Figure 6 in Appendix G shows the authors' permission to use them in this study some of the questions from their questionnaire. This section was evaluated using a four-point Likert scale. This section aimed to discern whether there would be an effect between the observed practices of the respondents during this pandemic and their levels of acceptance and urgency toward COVID-19 vaccines.

The last portion was about the Preference of Vaccine Based on the Mechanism of Action. In this portion, the participants were asked to choose which vaccine they would prefer based on the mechanism of action explained in the upper part of this portion. Some statements determined the respondents' views about the different aspects of vaccines' mechanism of action and how they affect their level of acceptance.

Moving on, the third section of the questionnaire evaluated the level of vaccine urgency of the respondents. This section consisted of 10 questions that aided in analyzing several research variables, namely, knowledge (1 and 2), source of information (3), attitude (4 and 5), and practices (6 - 9).

The researchers conducted a pilot study to test the reliability and validity of the survey tool. The values computed in the pilot testing resulted in the removal of some of the drafted questions. If the corrected item-total correlation is low, the question needs to be excluded from the questionnaire since it is not associated with the construct of the study tool. With this, the question number 3 in the level of acceptance (Cronbach alpha: .798), question number 9 in knowledge (Cronbach alpha: .552), question number 2 in sources of information (Cronbach alpha: .667), question number 1 in attitude (Cronbach alpha: .627) question number 5 in preference of vaccine based on mechanism of action (Cronbach alpha: .651), and question number 6 in vaccine urgency (Cronbach alpha: .818) were removed from the questionnaire.

3.5 Data Gathering Procedure

The researchers used survey questionnaires to gather data since the advantages of questionnaires in research would be substantial, mainly when online questionnaires are used.

Online surveys enable the researchers to easily record and check respondents' replies by eliminating the need to process and manually record the responses, unlike face-to-face and telephone questions.

The researchers conducted meetings to construct a survey questionnaire that was distributed among adults with comorbidities to analyze their level of acceptance and urgency in COVID-19 vaccination. The researchers conducted pilot testing to determine the integrity and reliability of the survey questionnaire. Once the questions in the survey questionnaire were officially approved and deemed substantial for the research, they were deployed to the target population. The researchers utilized Google forms. This platform aided the researchers in obtaining the analysis and interpretation of data since this automatically recorded the responses of the research participants.

The survey tool was divided into two parts. The first part of the survey tool was the Informed Consent portion, which stated that the respondents of our target population were anonymous and were only used for this study. This portion obtained the confirmation of the respondents and ensured that they had read and understood that participation in this study was voluntary. The second part was the Questionnaire Proper which contained the statements formulated by the researchers to meet the objectives of this study.

The Questionnaire Proper was divided into three sections: the participants' demographics, vaccine acceptance, and vaccine urgency. The first section was the demographics that gathered the respondents' personal information, including their location, contact details, and the necessary health information and documents such as their medical certificate and vaccination card to verify their inclusion in this study. The second section consisted of the statements that collated the

respondents' knowledge, sources of information, attitude, practices, and preference of vaccine based on the mechanism of action. The third section consisted of the statements that determined the correlation between the level of urgency of the respondents and knowledge, sources of information, attitude, and practices.

The researchers have done crowd-sourcing by gathering recruits or referrals from peers and relatives, known as the snowball technique. They were asked if they knew someone who fit the criteria required to be able to participate in this study. The researchers listed the names they have given, and the researchers have sent the link to the survey questionnaire to the recruits. The researchers also did crowdsourcing through posting on various social media platforms, including Facebook, Twitter, and Instagram. These social media sites were the chosen platforms since these are the widely used websites. Moreover, the researchers have contacted nonprofit organizations and offered them a donation pledge. The researchers gave a monetary donation for every respondent that these organizations were able to gather. One of the organizations was a nonprofit organization dedicated to providing stray cats and dogs a second chance at life. The donated funds were used to help provide for the needs of the rescued animals in their shelter. Another organization that coordinated with the researchers for data gathering was a youth organization that advocates the Global Goals for Sustainable Development and the UN’s Convention on the rights of the child. The donated funds were used for projects and programs in teaching the less fortunate kids. These organizations recruited participants for the study using their Facebook page and by gathering recruits through crowdsourcing.

The researchers asked for the participants' consent for their privacy and the confidentiality of the data collected. The researchers considered the variables and inclusion

criteria, including the demographics, the factors affecting vaccine acceptance, and vaccine urgency, when gathering respondents for the survey.

The responses were recorded by utilizing the tools in the Google forms that allow the researchers to view the survey results. The data were interpreted using the statistical parameters designated for the study.

3.6 Ethical Aspect of the Study

Before proceeding to the succeeding proposition, the researchers submitted the study to the Research Ethics Committee to guarantee that the survey was carried out under current ethical standards and criteria. Furthermore, this ensured the safety and respect of the people involved, notably the study respondents. A certificate of approval (FOP-ERC-2122-022) was issued after the review by the Research Ethics Committee (Appendix J).

Privacy and confidentiality of the respondents' information were crucial in research that uses survey tools as their data gathering tool. The handed survey questionnaire to the respondents had informed consent written in both Filipino and English language. The informed consent part of the survey consisted of statements affirming that they were willing to share their knowledge and information with the researchers and to participate in the research. The respondents were given a choice if they would participate in the study. If any information that may affect the respondents’ willingness to continue participating in this study becomes available, the researchers would immediately inform the respondents or the legally acceptable representative. The researchers would reach out to the respondents using the information they

had provided in the informed consent. The researchers denoted the anonymity and confidentiality of the data collected from the respondents.

The participants were not required to identify themselves, but the participants can provide their names on the questionnaire form. For those who provided their personal information, such as name, phone number, or email address, their information was kept private and confidential throughout the study. The researchers kept all the gathered respondents' information in a private Google drive. The only people who could access the data gathered were the researchers and the statistician. Furthermore, the researchers will only keep the collected information for a maximum of three years. After which, the researchers will reformat the said Google drive. The researchers had explained to the participants that all data and data collecting technologies utilized and gathered throughout the study would be erased and discarded entirely and irrevocably. It should be specific in the informed consent that their personal information was kept private throughout the study and afterward. The researchers also informed the respondents that the study findings might be published in scientific journals, debated in professional forums, and credited by other researchers. However, no information about the respondents was made public in a way that may be used to identify them.

The informed consent incorporated a brief introduction of the study and its objectives, an explanation of the researcher's subject selection and methodology, and the significance of their responses to its success. Furthermore, in case of any privacy invasion or threat to the respondent's dignity in the consent, the participants of this study may address the problem by contacting the Faculty of Pharmacy Research Ethics Committee using their email address: ustfoprec2021ay@gmail.com.

3.7 Data Analysis and Procedure

The researchers estimated that the respondents answered the questionnaire for approximately fifteen to twenty minutes. Consequently, the researchers utilized several statistical tools to compute the data in a specific variable obtained from the respondents. This included partial least squares structural equation modeling (PLS-SEM), Frequency, Percentage, Mean, Standard Deviation, and Inferential Statistics, which include the T-test and F-test, discussed further below. The Statistical Package for the Social Sciences (SPSS) version 25.0 software was used to analyze and interpret the collected data in the study. Version 25.0 was designed to be used as a complement to an introductory statistics course for undergraduates. This software has provided researchers with reliable and quick interpretation. Its descriptive statistics feature showed the central tendency, such as the median and expected value, and the dispersion or distribution of the variable's responses.

3.7.1 Partial Least Squares Structural Equation Modeling (PLS-SEM)

A PLS-SEM method is a prediction-oriented approach to SEM that eliminates the CB-SEM data and relationship specification requirements. PLS-SEM can reliably estimate very complex models using only a few observations (Sarstedt *et al*., 2014). The researchers used this model to determine what factor contributes the most and if it affects the level of acceptance and urgency of COVID-19 vaccination among adults with comorbidities, specifically for hypotheses 4-12. With a sufficient sample size (N), SEM allows researchers to quickly set up and verify hypothetical links between theoretical constructs and those between the constructs and their actual indicators (Deng *et al*., 2018).

3.7.2. Frequency, Percentage, Mean, and Standard Deviation

For the descriptive analysis, the researchers utilized frequencies and percentages to specify the number and percentage of observations or grouping of data points. They aided in demonstrating the relative frequency of the survey responses and other data. The researchers used these statistical methods to determine which age group, sex, and district in Metro Manila have the highest vaccine acceptance and urgency level. This was also used to determine the most preferred type of vaccine based on the mechanism of action. Determining the mean was also crucial in assessing the averages of the various data to be collected. The statistician determined the amount of variation around the mean in the individual responses of the respondents in each variable, which affected the conclusion's confidence level. A standard deviation that was high implies that the data was widely dispersed and unreliable. In contrast, a low standard deviation suggests that the data are grouped closely around the mean and are more reliable. The following formulas are shown below for the computation of these statistical tools.

MEAN COMPUTATION

$$\overline{X} = \frac{\sum X}{N}$$

Figure 3.7.2 A. Mean Formula

Whereas;

$\bar{x}$ =mean

Σx = Sum of all Data Points

N = Number of Data points

STANDARD DEVIATION COMPUTATION

$$\sigma = \sqrt{\frac{\sum(x_i - \mu)^2}{N}}$$

Figure 3.7.2 B. Standard Deviation Formula

Wherein;

σ = population standard deviation

N = the size of the population

xi = each value from the population

μ = the population mean

3.7.3 Inferential Statistics

In testing for hypotheses, inferential statistics were used by the researchers. The null hypothesis (H0) should be rejected using inferential statistics, which provides a quantitative mechanism. There are only two correct outcomes in an inferential test: the accurate rejection of H0 when it is false and the correct retention of H0 when true. As a result, two types of errors can be made: Type I, which occurs when H0 was incorrectly rejected, and Type II, which occurs when H0 was retained when it is in fact false (Marino, 2018). Inferential statistics were frequently used when comparing the differences between the treatment groups. Inferential statistics use measures from the sample of subjects in the experiment in the treatment groups and make generalizations about the larger population of participants (Kuhar, 2010). Moreover, as stated by Chin & Lee (2008), inferential statistics are significantly different from descriptive

statistics, which just summarizes the data that has been measured because it allows you to draw conclusions based on extrapolations.

Since the researchers have differentiated the highest level of acceptance and urgency in COVID-19 vaccination based on the Sex of the respondents, the T-test has been utilized. A T-test is a statistical tool that involves the confidence bounds for the random variable t of a t distribution. It is commonly used to test hypotheses about the means of normal distributions when the standard deviations are unknown (Merriam-webster dictionary, n.d.). On the other hand, the respondents' age was also differentiated from each other and their location; hence, the F-test was used. This test was designed to test if two population variances are equal (Mahobi, 2015). The formula for both T-tests and F-tests are as follows:

T-TEST COMPUTATION

$$t = \frac{\overline{x}_1 - \overline{x}_2}{\sqrt{(s^2(\frac{1}{n_1} + \frac{1}{n_2}))}}$$

Figure 3.7.2 C. T-Test Formula

Wherein;

t = t-value

x_1 and x_2 = the means of the two groups being compared

s_2 = the pooled standard error of the two groups

n_1 and n_2 = the number of observations in each of the groups

F-TEST COMPUTATION

$$F = s_1^2 / s_2^2$$

Figure 3.7.2 D. F-test Formula

where s^1_2 is the variance of sample 1. Remember that the sample variance is:

$$s^2 = \sum (x - \bar{x})^2 / (n - 1)$$

Figure 3.7.2 E. Variance Formula

CHAPTER IV:

RESULTS AND DISCUSSION

Considering that the limitations restricted the researchers brought about by the COVID-19 pandemic, the study statistician recommended that the researchers may gather at least 100 respondents to obtain sufficient data and proceed with the data analysis. This chapter presented the results from the 139 respondents who completed the survey questionnaire utilized by the researchers. The study focused on adults with comorbidities who reside within Metro Manila. The researchers aimed to analyze the factors contributing to the respondents' level of acceptance and urgency to the COVID-19 vaccine. Thus, the researchers used various statistical methods to compute the data in a specific variable collected from the respondents. Results were discussed and presented in table and diagram forms.

4.1 Demographic Profile of the Respondents

The demographic profile of the respondents consisted of their backgrounds and characteristics limited to those significant to the study. It included their age, sex,, location, COVID-19 vaccine and booster shot, types of comorbidities, and sources of information.

4.1.1 Age

Table 4.1 A shows the classification of respondents based on the age range they belonged to, as indicated in their submitted responses. Among the 139 respondents, 39.6% (n=22; N=139) belonged to the age group 18-24 years old, 5.8% (n=8; N=139) belonged to the age group 25-31 years old, 6.5% (n=9; N=139) belonged to the age group 32-38 years old, 7.9% (n=11; N=139)

belonged to the age group 39-45 years old, 18.7% (n=26; N=139) belonged to the age group 46-52 years old, and lastly, 21.6% (n=30; N=139) belonged to the age group 53-59 years old.

Table 4.1 A.

Age of the Respondents

Age range	Frequency	Percentage (%)
18-24 years old	55	39.6
25-31 years old	8	5.8
32-38 years old	9	6.5
39-45 years old	11	7.9
46-52 years old	26	18.7
53-59 years old	30	21.6
Grand Total	139	100%

4.1.2 Sex

Table 4.1 B presents the classification of the respondents based on their sex as specified in their submitted responses. The majority of the respondents were females (76.3%); n=106; N=139. The rest of the respondents were male (23.7%); n=33; N=139.

Table 4.1 B.

Sex of the Respondents

Sex	Frequency	Percentage (%)
Female	106	76.3
Male	33	23.7
Grand Total	139	100%

4.1.3 Location

Table 4.1 C shows the classification of respondents based on their location as indicated in their submitted responses. Among the 139 respondents, 20.9% (n=29; N=139) were living in District 1- Capital District (Manila), 28.8% (n=40; N=139) were living in District 2- Eastern Manila District (Mandaluyong, Marikina, Pasig, Quezon City, and San Juan), 6.5% (n=9; N=139) were living in District 3- Northern Manila District (Camanava) (Caloocan, Malabon,

Navotas, and Valenzuela), and 43.9% (n=61; N=139) were living in District 4- Southern Manila District (Las Piñas, Makati, Muntinlupa, Parañaque, Pasay, Pateros, and Taguig).

Table 4.1 C.

Location of the Respondents

Location	Frequency	Percentage (%)
District 1- Capital District (Manila)	29	20.9
District 2- Eastern Manila District (Mandaluyong, Marikina, Pasig, Quezon City, and San Juan)	40	28.8
District 3- Northern Manila District (Camanava) (Caloocan, Malabon, Navotas, and Valenzuela)	9	6.5
District 4- Southern Manila District (Las Piñas, Makati, Muntinlupa, Parañaque, Pasay, Pateros, and Taguig)	61	43.9
Grand Total	139	100%

4.1.4 COVID-19 Vaccine and Booster Shot

Table 4.1 D depicts the respondents' responses in terms of their vaccination status. Among the 139 respondents, 100% (n=139; N=139) of them had already received their COVID-19 vaccination. Whereas, as seen in Table 4.1 E for the booster shot, only 79.1% (n=110; N=139) have received their COVID-19 vaccine, and 20.9% (n=29; N=139) are yet to receive their COVID-19 vaccine.

Table 4.1 D.

COVID-19 Vaccine Status of the Respondents

COVID-19 Vaccine Status	Frequency	Percentage (%)
Yes	139	100
No	0	0
Grand Total	139	100

Table 4.1 E.

Booster Shot Status of the Respondents

Booster Shot Status	Frequency	Percentage (%)
Yes	110	79.1
No	29	20.9
Grand Total	139	100%

4.1.5 Types of Comorbidities

Table 4.1 F presents the types of comorbidities of the respondents. Among the 139 respondents, 8.6% (n=12; N=139) had Asthma/Bronchial asthma, 2.2% (n=3; N=139) had Allergic Rhinitis, 1.4% (n=2; N=139) had Anemic (Thalassemia), 0.7% (n=1; N=139) had Atopic Dermatitis, Bleeding Disorder - Hemophilia A, Benign Prostatic Hyperplasia, and Cardio-metabolic respectively, 8.6% (n=12; N=139) had Cardiovascular Conditions, 2.2 (n=3; N=139) had Cerebrovascular Conditions, 0.7% (n=1; N=139) had Cholelithiasis and Chronic Kidney Disease respectively, 21.6% (n=30; N=139) had Diabetes, 0.7% (n=1; N=139) had Dyslipidemia, Glucose-6-phosphate dehydrogenase, and Gastric Ulcer respectively, 2.8% (n=4; N=139) had High Cholesterol, 0.7% (n=1; N=139) had Hypercholesterolemia, 33.8% (n=1; N=139) had Hypertension, 0.7% (n=1; N=139) respectively had Immunodeficiencies, Insulin Resistance, Major Depressive Disorder, Mild Fatty Liver, and Nephrolithiasis, 1.4% (n=2; N=139) had Obesity, 2.2% (n=1; N=139) had Orthopedic disability, 1.4% (n=2; N=139) had Osteoarthritis, 0.7% (n=1; N=139) had Ovarian cancer, 2.2% (n=3; N=139) had Polycystic ovary syndrome, 0.7% (n=1; N=139) had Persons with Disability (Psychosocial), 16.5% (n=1; N=139) had Respiratory illnesses, 0.7% (n=1; N=139) respectively had Sinusitis, Stroke, Subclinical Hypothyroidism, Thickened Endometrium with Polyp & Endometrial Cyst, Thrombocytosis anemia, and Vertigo, and lastly, 1.4% (n=2; N=139) had Visual impairment.

Table 4.1 F.
Types of Comorbidities of the Respondents

Sources of Information	Frequency	Percentage (%)
Asthma/Bronchial asthma	12	8.6
Allergic Rhinitis	3	2.2
Anemic (Thalassemia)	2	1.4
Atopic Dermatitis	1	0.7
Bleeding Disorder - Hemophilia A	1	0.7
Benign Prostatic Hyperplasia	1	0.7
Cardio-metabolic	1	0.7
Cardiovascular Conditions	12	8.6
Cerebrovascular Conditions	3	2.2
Cholelithiasis	1	0.7
Chronic Kidney Disease	1	0.7
Diabetes	30	21.6
Dyslipidemia	1	0.7
G6PD	1	0.7
Gastric Ulcer	1	0.7
High Cholesterol	4	2.9
Hypercholesterolemia	1	0.7
Hypertension	47	33.8
Hyperthyroidism	1	0.7
Immunodeficiencies	1	0.7
Insulin Resistance	1	0.7
Major Depressive Disorder	1	0.7
Mild Fatty Liver	1	0.7
Nephrolithiasis	1	0.7
Obesity	2	1.4
Orthopedic disability	3	2.2
Osteoarthritis	2	1.4
Ovarian cancer	1	0.7
PCOS	3	2.2
PWD Psychosocial	1	0.7
Respiratory illnesses	23	16.5
Sinusitis	1	0.7
Stroke	1	0.7
Subclinical Hypothyroidism	1	0.7
Thickened Endometrium with Polyp & Endometrial Cyst	1	0.7
Thrombocytosis anemia	1	0.7
Vertigo	1	0.7
Visual impairment	2	1.4

4.1.6 Sources of Information About COVID-19 Vaccines of the Respondents

Table 4.1 G represents Sources of Information of the Respondents. Among the 139 respondents, 69.1% (n=96; N=139) answered that their sources of information were Government websites, 51.8% (n=72; N=139) answered that their sources of information were News blogs, 24.5% (n=34; N=139) answered that their sources of information were Newspapers, 63.3% (n=88; N=139) answered that their sources of information were Radio, 20.9% (n=29; N=139) answered that their sources of information were Television, 77.7% (n=108; N=139) answered that their sources of information were the internet in general, 1.4% (n=2; N=139) answered that their sources of information were Centers for Disease Control and Prevent, Friends/Colleagues, Research papers/Articles, and Relatives respectively, and lastly, 0.7% (n=1; N=139) answered that their sources of information were World Health Organization, Medical Related Accounts, and Department of Health respectively.

Table 4.1 G.

Sources of Information About COVID-19 Vaccine of the Respondents

Sources of Information	Frequency	Percentage (%)
Government website	96	69.1
News blogs	72	51.8
News papers	34	24.5
Radio	88	63.3
Television	29	20.9
The internet in general	108	77.7
Centers for Disease Control and Prevent	2	1.4
Friends/Colleagues	2	1.4
Research papers/Articles	2	1.4
Relatives	2	1.4
World Health Organization	1	0.7
Medical Related Accounts	1	0.7
Department of Health	1	0.7
Grand Total		100%

4.2. The Levels of Acceptance and Urgency of the COVID-19 Vaccine among Adults with Comorbidities in Metro Manila

Table 4.2 shows the levels of acceptance and urgency of the COVID-19 vaccine among adults with comorbidities in Metro Manila. Results revealed that the respondents' level of acceptance of the COVID-19 vaccine was very high, with a mean of 3.760 and a standard deviation of 0.427. Their overall level of acceptance was highly accepting, falling within the mean range of 3.25 - 4.00. As shown in Table 4.2, respondents agreed that they wanted to obtain the COVID-19 vaccine right away ($\mu = 3.698$, $\sigma = 0.520$) and that they were willing to receive the COVID-19 vaccine regardless of the circumstances ($\mu = 3.540$, $\sigma = 0.640$). Meanwhile, they strongly disagreed with the statement which indicated that they still had some concerns, so they do not want to receive the COVID-19 vaccine right away ($\mu = 3.320$, $\sigma = 0.870$) and to the statement which declared that they are having second thoughts about the COVID-19 vaccine ($\mu = 3.420$, $\sigma = 0.816$). These statements' mean and standard deviation in Table 4.2 were reversed since the statements were negated. Generally, the results demonstrated that the respondents were highly accepting of getting vaccinated without hesitation.

Table 4.2

The Levels of Acceptance and Urgency of the COVID-19 Vaccine among Adults with Comorbidities in Metro Manila

	Mean	SD	Verbal Interpretation
Level of acceptance	**3.760**	**0.427**	**Highly Accepting**
I would like to receive the COVID-19 vaccine right away.	3.698	0.520	Highly Accepting
I still have some concerns, so I do not want to receive the COVID-19 vaccine right away.	3.320	0.870	Highly Accepting
I am still having second thoughts about the COVID-19 vaccine.	3.420	0.816	Highly Accepting
I am willing to receive the COVID-19 vaccine no matter what.	3.540	0.640	Highly Accepting
Vaccine urgency	**3.299**	**0.701**	**Very Urgent**
I will get vaccinated immediately because I am knowledgeable of the health benefits of being vaccinated.	3.669	0.530	Very Urgent
I will get vaccinated immediately because I am aware that it ensures that people are safe from COVID-19 infection.	3.676	0.541	Very Urgent
I will get vaccinated immediately because the information about the COVID-19 is trustworthy.	3.547	0.555	Very Urgent
I will get vaccinated immediately for immunization regardless of whether the vaccine has side effects or not.	3.360	0.722	Very Urgent
I will get vaccinated immediately because waiting for natural immunity poses risks to my health.	3.576	0.648	Very Urgent
I will get vaccinated immediately to minimize the need for washing hands or using alcohol.	3.094	0.999	Urgent
I will get vaccinated immediately so as not to be afraid of crowded places outside.	3.719	0.933	Very Urgent
I will get vaccinated immediately to prevent infection from COVID-19 variants.	3.597	0.622	Very Urgent
I will get vaccinated immediately to avoid any hassle in public places or transportation.	3.014	0.932	Urgent

	Mean	SD	Verbal Interpretation
Rate your level of acceptance towards COVID-19 vaccination	3.763	0.427	Highly Accepting
Rate your level of urgency towards COVID-19 vaccination.	3.741	0.529	Very Urgent

According to the World Health Organization (2020c), combined factors such as perceived risk and severity of infection, vaccination confidence, and values and emotions usually motivate people to get vaccinated. Since the pandemic started, the implementation of lockdowns in various country regions, notably in metropolitan areas, has had a significant impact on the country's economy and the people's well-being. Given that COVID-19 infections have been steadily increasing in the Philippines over the past two years, the country's infection curve must be flattened. Joshi et al. (2021) stated that perceiving COVID-19 infection as a severe problem for the country and/or for oneself is a powerful predictor of vaccine acceptance. Also, based on several research studies, the higher the perceived vulnerability and severity of COVID-19 infection and pandemic, the higher the level of vaccine acceptance (Joshi et al., 2020). This explains why the respondents were highly accepting of receiving the vaccine right away regardless of the circumstances.

Since the study's target population was adults with comorbidities, their acceptance of the COVID-19 vaccine appeared to be higher. It is well known that COVID-19 infection has worse results in patients with comorbidities than in healthy people. Furthermore, how people perceive the likelihood of events through the "availability heuristic," or decision-making based on how readily available it is to them, can influence vaccine acceptance (WHO, 2020c). Given that COVID-19 vaccination is free and available throughout the Philippines, it is more likely that most, but not all, people will acquire the vaccine.

On the other hand, low vaccine acceptance can be linked to a lack of trust in vaccines due to concerns that they would not be effective or have severe negative effects (WHO, 2020c). Incorrect information filling the knowledge gap about the multiple uncertainties in COVID-19 vaccines, as well as the overabundance of COVID-19 information circulating the internet and

media, also known as "infodemic," expose people to misinformation, rumors, and false conspiracy theories, which may have an impact on vaccine confidence (WHO, 2020c). In order to eradicate the coronavirus infection, Elgendy & Abdelrahim (2021) emphasized the need for public knowledge such as disease transmission, preventive measures, and vaccination information to increase vaccine acceptance and minimize vaccine reluctance among the general public. Based on the results, the respondents strongly disagreed with not receiving COVID-19 vaccinations right away and having second thoughts about the vaccine. This indicated that they had enough trust and confidence in COVID-19 vaccinations to wish to get vaccinated urgently.

Results also revealed that the urgency to be vaccinated among respondents was very high, with a mean of 3.741 and a standard deviation of 0.529. The overall vaccine urgency level was very urgent, falling within the mean range of 3.25 - 4.00. The top three most important factors for their vaccine urgency were avoidance of fear in crowded areas, awareness of the vaccine's protection from COVID-19 infection, and knowledge of its health benefits. The highest indicator appeared to be "I will get vaccinated immediately so as not to be afraid of crowded places outside." ($\mu = 3.719$, $\sigma = 0.933$) with a verbal interpretation of very urgent. It was followed by the indicator "I will get vaccinated immediately because I am aware that it ensures that people are safe from COVID-19 infection." ($\mu = 3.676$, $\sigma = 0.541$), which had a verbal interpretation of very urgent. Next was the indicator "I will get vaccinated immediately because I am knowledgeable of the health benefits of being vaccinated." ($\mu = 3.669$, $\sigma = 0.530$), having a verbal interpretation of very urgent. Referring to Table 4.2, all the indicators under vaccination urgency were deemed very urgent, with the exception of two indicators: "I will get vaccinated immediately to minimize the need for washing hands or using alcohol." and "I will get vaccinated immediately to avoid any hassle in public places or transportation." These two

variables were only perceived as urgent by respondents since their means lay within the mean range of 2.50 - 3.24. The lowest indicator appeared to be "I will get vaccinated immediately to avoid any hassle in public places or transportation." ($\mu = 3.014$, $\sigma = 0.932$). Overall, they expressed a strong desire to receive the COVID-19 vaccine as soon as possible.

All the indicators under vaccine urgency were perceived as very urgent or urgent by the respondents. As indicated earlier, the highest indicator, "I will get vaccinated immediately so as not to be afraid of crowded places outside.", declared that respondents see vaccination as a precautionary measure to avoid the anxiety of contracting the disease in crowded places. In a study by Elgendy & Abdelrahim (2021) on public awareness of coronavirus vaccines, vaccine acceptance, and hesitancy, the majority of their participants were committed to precautionary measures for protection against SARS-CoV-2 infection, indicating their awareness of the virus's dangers and fear of infection. The second highest indicator, "I will get vaccinated immediately because I am aware that it ensures that people are safe from COVID-19 infection", revealed that their level of urgency is focused on preventing disease transmission. According to Lin et al. (2020), a large proportion of participants from regions with a high number of confirmed cases indicated a strong desire to be vaccinated. Moreover, in a study done by Al-Mohaithef and Padhi (2020), participants' perceived risk and trust in the health system were revealed to be important predictors of COVID-19 vaccine intention. To further support the claim that safety and protection against COVID-19 is one of the highest indicators for vaccine urgency, Soares et al. (2021) reiterated that vaccine refusal and delay were higher before information on the vaccine's safety and efficacy was released, implying that people may be reacting to new information and demonstrating how hesitancy is a complex, time-dependent construct influenced by a variety of factors. Lastly, the third-highest indicator, "I will get vaccinated immediately because I am

knowledgeable of the health benefits of being vaccinated.", stated that they are aware and have weighed the benefits and drawbacks of vaccination, resulting in a greater appreciation of COVID-19 vaccination's benefits. Wong et al. (2021) used the health belief model (HBM) to find that perceived severity, perceived vaccine benefits, signals to action, self-reported health outcomes, and trust were all positive indications of acceptance in a population-based study in Hong Kong about the COVID-19 vaccine.

Other indicators included getting immediate vaccination due to trusting the information about COVID-19, disregarding the vaccine's side effects, relying on natural immunity to protect oneself from infection, and preventing infection from COVID-19 variants. These indicators depend on having adequate public immunization programs and education campaigns about the importance of COVID-19 vaccination. Due to concerns and hesitation about COVID-19 vaccination safety, including public trust issues among the general and healthcare workers, Elhadi et al. (2021) recommend that public immunization programs and educational campaigns about the vaccine's importance be developed to enhance public trust, eliminate financial and social barriers, mitigate public health issues, and boost trust and vaccine intake. Meanwhile, the goal of having an urgent immunization to reduce the need for preventive measures and avoid inconvenience in public places or transportation was to reduce worry among people, especially those who go to work, and help people gradually return to their normal lives. According to Lin *et al*. (2020) study on understanding COVID-19 vaccine demand and hesitancy in China, participants in the service occupation had higher vaccination intentions, reflecting their knowledge of the importance of protection among employees in contact-intensive industries.

4.3. Differences in the Level of Acceptance in COVID-19 Vaccination Based on the Age Group

Table 4.3 A depicts the respondents' level of acceptance based on their age group. Based on the total mean of the respondents, it can be seen that all age groups (18-24 yrs old; μ= 3.76, 25-31 yrs old; μ= 3.63, 32-38 yrs old; μ= 3.56, 39-45 yrs old; μ= 3.27, 46-52 yrs old; μ= 3.38, 53-59 yrs old; μ= 3.53) were highly accepting towards the COVID-19 vaccine with the age group of 18-24 years old being the most accepting (total μ = 3.76). That being said, the results showed that the total p-value (p =.011) was less than 0.05, which indicated a significant difference in the level of acceptance of comorbid adults toward the COVID-19 vaccine based on their group age.

Table 4.3 A

Differences in the Level of Acceptance in COVID-19 Vaccination Based on the Age Group

Level of Acceptance	18-24 years old		25-31 years old		32-38 years old		39-45 years old		46-52 years old		53-59 years old		F- value	df	P- value
	n= 55		n=8		n= 9		n=11		n=26		n=30				
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD			
I would like to receive the COVID-19 vaccine right away.	3.82	.356	3.50	1.069	3.67	.500	3.36	.505	3.58	.578	3.70	.466	2.565	133	.030
I still have some concerns, so I do not want to receive the COVID-19 vaccine right away.	3.64	.677	3.50	.926	3.33	.866	2.91	.539	3.12	.952	3.03	1.033	3.187	133	.009
I am still having second thoughts about the COVID-19 vaccine.	3.62	.690	3.75	.707	3.44	.882	3.00	.632	3.15	.967	3.23	.817	3.150	133	.010
I am willing to receive the COVID-19 vaccine no matter what.	3.62	.652	3.38	1.061	3.56	.527	3.18	.751	3.42	.578	3.67	.479	1.388	133	.233
Rate your level of acceptance towards COVID-19 vaccination	3.85	.356	3.88	.354	3.67	.500	3.55	.522	3.65	.485	3.77	.430	1.657	133	.149
Total	3.76	.470	3.63	.518	3.56	.527	3.27	.467	3.38	.571	3.53	.507	3.123	133	.011

According to Shekhar *et al*. (2021), COVID-19 vaccination acceptance increased as age increased. Their results showed that in the 18-30 age group of their respondents, only 34% were

accepting of the COVID-19 vaccine, but the percentage of accepting respondents went up to 47% in the above 70-year-old age group. Based on another study by Alqudeimat *et al.* (2019) study, the most accepting age group was 21-24 years old. Based on the obtained results and previous literature, it can be stated that age groups between the mid-20s to early-30s showed the most level of acceptance. With this, it can be concluded that the acceptance of different age groups may vary depending on geography. According to a study by Mohamed *et al.* (2021), younger age groups displayed a higher level of acceptance in Malaysia, but older age groups showed higher acceptance in Saudi Arabia. It was also found in a study by Rzymski *et al.* (2021) that in all cases except mRNA vaccines, age was a significant factor in determining the level of trust in a certain type of vaccine, with persons aged <50 years reporting the highest level.

Presented in Table 4.3 B were the respondents' levels of urgency on COVID-19 vaccination based on their age group. Based on the total means, the age groups 18-24 years old (μ= 3.42), 25-31 years old (μ= 3.25), and 53-59 years old (μ= 3.47) considered getting COVID-19 vaccination to be very urgent. However, the means of the age groups 32-38 years old (μ= 3.22), 39-45 years old (μ= 3.09), and 46-52 years old (μ= 3.23) indicated that they considered getting vaccinated as urgent only as their mean values were not > 3.25. Therefore, the age group with the highest level of urgency was the 53-59-year-old age group, as they had the highest value amongst the total means. The total p-value of .302 indicates no significant difference in the level of urgency based on the respondents' age groups.

According to a study by Al-Qerem & Jarab (2022), the positive attitude and extensive knowledge on COVID-19 of Iraqi adults may be responsible for the high rate of COVID-19 vaccinations as they recognized the more significant benefits of vaccination rather than its risks.

This could support the idea that adults were more urgent to take vaccines because they had more knowledge and a positive attitude towards vaccination.

With regards to the results of the actual questions, question 4 ($p = .647$) showed a p-value >0.05, indicating that there was no significant difference in the answers of the respondents, and all strongly agreed to "get vaccinated immediately for immunization regardless of whether the vaccine has side effects or not." There was also no significant difference ($p = .260$) in the responses to the question "I will get vaccinated immediately so as not to be afraid of crowded places outside," showing that most of the respondents agreed (18-24 yrs old; $\mu = 2.67$, 25-31 yrs old; $\mu = 3.13$, 39-45 yrs old; $\mu = 2.82$, 46-52 yrs old; $\mu = 2.58$, 53-59 yrs old; $\mu = 2.93$) to want to get vaccinated to spend time outdoors, except for the 32-38 years old ($\mu = 2.22$). Also, in a study by Karayurek *et al.* (2021), vaccination decreased the level of fear and anxiety in dental professionals. It can be stated that the respondents of the study urgently want to get vaccinated to reduce the fear they have of COVID-19.

Table 4.3 B
Differences in the Level of Urgency in COVID-19 Vaccination Based on the Age Group

Vaccine urgency	18-24 years old n=55		25-31 years old n=8		32-38 years old n=9		39-45 years old n=11		46-52 years old n=26		53-59 years old n=30		F-value	df	p-value
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD			
I will get vaccinated immediately because I am knowledgeable of the health benefits of being vaccinated.	3.85	.356	3.38	1.061	3.56	.527	3.18	.405	3.50	.583	3.77	.430	5.199	133	.000
I will get vaccinated immediately because I am aware that it ensures that people are safe from COVID-19 infection.	3.80	.447	3.38	1.061	3.56	.527	3.18	.405	3.62	.571	3.80	.407	3.705	133	.004
I will get vaccinated immediately because the information about the COVID-19 is trustworthy.	3.71	.458	3.38	1.061	3.33	.500	3.18	.405	3.38	.571	3.63	.490	3.130	133	.011
I will get vaccinated immediately for immunization regardless of whether the vaccine has side effects or not.	3.42	.762	3.25	1.035	3.44	.882	3.18	.405	3.19	.749	3.47	.571	.670	133	.647
I will get vaccinated immediately because waiting for natural immunity poses risks to my health.	3.69	.635	3.38	1.061	3.56	.527	3.27	.467	3.35	.745	3.73	.450	2.068	133	.073
I will get vaccinated immediately to minimize the need for washing hands or using alcohol.	1.84	.958	2.13	1.356	1.33	.707	2.45	.688	2.19	.895	2.57	1.006	3.807	133	.003
I will get vaccinated immediately so as not to be afraid of crowded places outside.	2.67	.944	3.13	1.126	2.22	1.093	2.82	.751	2.58	.758	2.93	.980	1.318	133	.260
I will get vaccinated immediately to prevent infection from COVID-19 variants.	3.78	.417	3.38	1.061	3.67	.500	3.36	.505	3.31	.838	3.63	.556	2.826	133	.073
I will get vaccinated immediately to avoid any hassle in public places or transportation.	2.84	1.067	3.25	1.035	2.56	1.014	2.91	.831	3.00	.849	23.47	.507	2.510	133	.033
Rate your level of urgency towards COVID-19 vaccination.	3.84	.420	3.88	.354	3.67	.707	3.45	.688	3.58	.703	3.80	.407	1.760	133	.125
Total	3.42	.498	3.25	1.035	3.22	.441	3.09	.539	3.23	.652	3.47	.507	1.223	133	.302

4.4. Differences in the Level of Acceptance and Urgency in COVID-19 Vaccination Based on the Sex

The highest level of acceptance in COVID-19 vaccination based on sex was depicted in Table 4.4 A. Based on the mean that was obtained, most of the respondents were highly accepting, with the highest mean value of 3.73 for males and 3.77 for females, both of which can be interpreted as highly accepting. The females obtained a mean total of 3.59 with a standard deviation of .512. On the other hand, the males only got 3.55 for their total mean and .564 for

their standard deviation. Despite this result, since the total p-value and all of the p-values that were computed were greater than 0.05, with the highest p-value of .626 and had the lowest value of .123, it can be concluded that there was no significant difference between the sex of the respondents based on their level of acceptance in COVID-19 vaccination.

Table 4.4 A
Differences in the Level of Acceptance in COVID-19 Vaccination Based on the Sex

Level of Acceptance	Male n=33		Female n=106		t-value	df	p-value
	Mean	SD	Mean	SD			
I would like to receive the COVID-19 vaccine right away.	3.58	.708	3.74	.443	2.410	137	.123
I still have some concerns, so I do not want to receive the COVID-19 vaccine right away.	3.42	.830	3.29	.883	.576	137	.449
I am still having second thoughts about the COVID-19 vaccine.	3.36	.859	3.44	.806	.239	137	.626
I am willing to receive the COVID-19 vaccine no matter what.	3.45	.754	3.57	.602	.762	137	.384
Rate your level of acceptance towards COVID-19 vaccination	3.73	.452	3.77	.420	.294	137	.588
Total	3.55	.564	3.59	.512	.218	137	.644

According to Sahile *et al.* (2022), sex is one of the Predictors of COVID-19 Vaccine Acceptance. The association with acceptance of COVID-19 vaccines has been significantly determined in the lower age group, higher education level, females, and not having chronic diseases (Mohamed *et al.*, 2021). The study by Hawlader *et al*. (2022) in India revealed that females have higher vaccine acceptance than males, with 69.02%. Similar trends have been observed in Metro Manila, as seen in Table 4.4. Females obtained a mean and standard deviation of 3.52 and .639, respectively, compared to males, who only garnered a mean and standard deviation of 3.45 and .711, respectively. A recent study revealed that women are more easily persuaded to get the vaccine for herd immunity than males (Neumann-Böhme *et al.*, 2020). In a

different light, contradicting statements were seen in the study of Dror *et al*. (2020), Hacquin *et al*. (2020), Sahile *et al*. (2022), and Wong *et al*. (2020), who argued that males are more likely to accept the vaccination than females. The differences between sexes may be due to the sex-difference mortality rate in COVID-19 (Dror *et al.*, 2020). Differences in the results may be caused by the different sample sizes and the survey location. Furthermore, different time frames when the survey was conducted may also be seen as a reason why the results differ.

Results also revealed no significant difference between the levels of acceptance of COVID-19 vaccines for both sexes. Similar results have been argued by Hawlader *et al.* (2022), indicating that both males and females have statistically similar results in Bangladesh and Nepal; hence there is no significant difference between the two sexes. In line with this, Fojnica *et al*. (2022) concluded that the logistic regression obtained shows that sex has no significance in the vaccine acceptance of residents of Bosnia and Herzegovina. However, there is a tendency in which women appear to be more apprehensive of COVID-19 immunizations, while males appear to be slightly more prone to vaccination, deviating from the trend of women using more medical care services (Fojnica *et al.*, 2022)

The highest urgency in COVID-19 vaccination based on sex was shown in Table 4.4 B. Most of the results of the computed mean for both sex revealed that many of the respondents perceived getting the vaccination for COVID-19 as very urgent. Only question number 7, which stated that “they are willing to get vaccinated immediately so as not to be afraid of crowded places outside.” only got an interpretation of urgent for both sexes. Meanwhile, question 6 stated that “they are willing to get vaccinated immediately to minimize the need for washing hands or using alcohol.” got the interpretation was not urgent for both sexes. Both questions number 6 and 7 falls under the variable of practices. For the total mean of both sexes, the male garnered a

mean and standard deviation of 3.21 and .781, respectively. On the other hand, females garnered a mean and standard deviation of 3.39 and .489. These results revealed that females were more urgent to be vaccinated than males. However, the computed total p-value showed no significant difference between the sex of the respondents towards their urgency in getting the COVID-19 vaccine since it was greater than 0.05 (p = .127).

Table 4.4 B
Differences in the Level of Urgency in COVID-19 Vaccination Based on the Sex

Vaccine urgency	Male n=33		Female n=106		t-value	df	p- value
	Mean	SD	Mean	SD			
I will get vaccinated immediately because I am knowledgeable of the health benefits of being vaccinated.	3.48	.712	3.73	.448	-2.322	137	.022
I will get vaccinated immediately because I am aware that it ensures that people are safe from COVID-19 infection.	3.48	.712	3.74	.464	-2.365	137	.019
I will get vaccinated immedistely because the information about the COVID-19 is trustworthy.	3.39	.704	3.59	.493	-1.828	137	.070
I will get vaccinated immediately for immunization regardless of whether the vaccine has side effects or not.	3.21	.820	3.41	.687	-1.348	137	.180
I will get vaccinated immediately because waiting for natural immunity poses risks to my health.	3.45	.711	3.61	.626	-1.230	137	.221
I will get vaccinated immediately to minimize the need for washing hands or using alcohol.	2.39	.998	2.00	.986	1.999	137	.048
I will get vaccinated immediately so as not to be afraid of crowded places outside.	2.70	1.015	2.73	.911	-.158	137	.875
I will get vaccinated immediately to prevent infection from COVID-19 variants.	3.45	.833	3.64	.538	-1.514	137	.132
I will get vaccinated immediately to avoid any hassle in public places or transportation	3.06	.966	3.00	.926	.325	137	.746
Rate your level of urgency towards COVID-19 vaccination.	3.61	.704	3.78	.458	2.849	137	.094
Total	3.21	.781	3.39	.489	-1.535	137	.127

A systematic review of the willingness to be vaccinated in various countries suggested that there is a large variability in the level of willingness to receive the COVID-19 vaccination in

different countries (Wake, 2021). In Metro Manila, as stated in Table 4.4 B, females were more urgent in getting the vaccination for COVID-19 than males. The American Academy of Pediatrics' Committee on Bioethics showed their support to those families who have been reluctant in getting their vaccine due to health care facilities deprivation (Kumar *et al.*, 2016). Therefore, more exposure to the health care facilities will make people urgent in getting their vaccine. Hossain *et al.* (2020), however, revealed that knowledge scores were slightly higher in males (8.75± 1.58) than in females (8.66± 1.70), which contradicted the result in Table 4.4 B. Table 4.4 B revealed that females had higher urgency than males based on the computed mean and standard deviation. The Centers for Disease Controls and Prevention (2021d) released an alert regarding the urgency of vaccination of those people who are trying to be pregnant, pregnant women, and those who are recently pregnant. The said Centers have pushed urgency toward females involved in pregnancy for Disease Control and Prevention because of the increasing morbidity and mortality rate in pregnant women. This might be the reason why the urgency of females was lower than males. The differences in the result might be caused by a disproportionate ratio of male and female respondents, which was beyond the control of the researchers.

As stated above, Table 4.4 B revealed that questions number 1 and 2 had a significant difference between the sex of the respondents based on their urgency toward the COVID-19 vaccine, both of which belong to the variable knowledge. Islam *et al.* (2021) have a contradicting statement stating that Knowledge regarding COVID-19 vaccinations was not significant in terms of participants' sex which contradicts the results. This was also supported in the studies of Ferdous *et al.* (2020) and Banik *et al.* (2020), stating that there were no significant gender differences for each item of knowledge questions. A similar trend has been concluded by

Hossain *et al.* (2020), who have determined that people in Bangladesh — both males and females — have similarities based on their knowledge regarding COVID-19 symptoms, precautions, and health advisory practices.

On the other hand, practices have resulted in a significant difference between the respondents' sex towards their urgency. However, only question number 6 showed a significant difference between the sex of the respondents, with females being more not urgent than males. The obtained mean and standard deviation revealed that both males and females perceived getting the vaccine as not urgent if the reason was to minimize the need for washing hands or using alcohol. Females, being more not urgent than the males, indicated that other factors affect their urgency in getting the vaccine. Bertakis (2000, as cited by Allen-Watts, 2022) stated that women visit health care facilities more frequently than males, which might be why the females refused to take the vaccine to minimize the need for washing hands and using alcohol.

Questions number 3,4,5,7,8,9, and 10 revealed that there was no significant difference between both sexes in terms of their urgency toward the COVID-19 vaccines. Question number 3 falls under the variable sources of information. In the study by Hossain *et al.* (2020), access to information through print and electronic media and internet access in Bangladesh have been found to be contributing factors to the similarity in knowledge for both sexes. Similarly, in Metro Manila, as presented in Table 4.1 G and Figure 4.1 G, the Internet in general, a government website, radio, and news blogs were the top sources of information by the respondents. However, proper and reliable information dissemination is important, especially when fake news has been rampant (Wilson *et al*., 2020). On the other hand, questions number 4 and 5 were under the variable attitude. The results have shown that there was no significant difference. However, in the results of the bivariate analysis that was gathered by Islam *et al*. (2021), there were

significant differences in sexes for attitudes since the authors obtained a p-value of 0.025, which contradicted the results garnered by the researchers. Moreover, numbers 7 – 9 were for the practices, which have also resulted in not significant. Similar results have been made by Issanov *et al.* (2021), stating that sex and age were not associated with COVID-19 vaccine hesitancy. Moreover, the study by Al-Marshoudi *et al.* (2021) has stated that over half of the respondents are willing to take the vaccine, and 845 of the respondents are willing to take the second dose of vaccination. This only means that their practices towards the vaccination were not significant in terms of sex, supporting the results obtained by the researchers. People with a history of chronic disease have also been identified as more willing to take the vaccination in comparison with those healthy people. This means that people with comorbidities have been more urgent in getting the vaccine than those healthy people. In line with this, the study of Issanov *et al.* (2021) has also stated that most of the respondents stated that they are following the recommended plan, with two-thirds agreeing with the compulsory plan. Hence, the respondents were willing to participate in the preventive measures that the country has imposed.

Despite the comparison that was made, the overall result for the males and females depicted no significant difference between the two sexes. This only means that the sex of the respondents did not affect their level of acceptance and urgency.

4.5. Differences in the Level of Acceptance and Urgency in COVID-19 Vaccination Based on the District in Metro Manila

Table 4.5 A indicated that there were no significant differences in the level of acceptance in COVID-19 vaccination based on the district in Metro Manila. The total p-value, which was greater than 0.05, suggested this interpretation (p = .6205). Furthermore, the findings revealed that respondents from all districts were substantially willing to receive the COVID-19 vaccine

immediately by mean values of more than 3.24. This indicated that the respondents had a high level of acceptance of the COVID-19 vaccine, regardless of their location.

Table 4.5 A

Differences in Level of Acceptance in COVID-19 Vaccination Based on the District in Metro Manila

Level of Acceptance	District 1 n=29		District 2 n=40		District 3 n=9		District 4 n=61		F-value	df	p-value
	Mean	SD	Mean	SD	Mean	SD	Mean	SD			
I would like to receive the COVID-19 vaccine right away.	3.69	.660	3.65	.533	3.44	.527	3.77	.424	1.231	135	.301
I still have some concerns, so I do not want to receive the COVID-19 vaccine right away.	3.55	.783	3.20	.992	3.33	.866	3.30	.823	.955	135	.416
I am still having second thoughts about the COVID-19 vaccine.	3.52	.829	3.48	.816	3.33	.866	3.36	.817	.333	135	.802
I am willing to receive the COVID-19 vaccine no matter what.	3.52	.785	3.48	.679	3.44	.527	3.61	.556	.434	135	.731
Rate your level of acceptance towards COVID-19 vaccination	3.83	.384	3.78	.423	3.44	.527	3.77	.424	.328	135	.805
Total	3.66	.553	3.53	.554	3.44	.527	3.61	.493	.594	135	.6205

According to a study, the respondents' age, race, marital status, current location, monthly income, occupation, and medical condition (diabetes mellitus and hypercholesterolemia) were the only factors that significantly impacted COVID-19 vaccine acceptance. Sex and marital status, on the other hand, were found to have a substantial effect on vaccination acceptability in China and Saudi Arabia. Besides being a healthcare worker, studies from Indonesia found no significant link between sociodemographic variables, including their locations and vaccine acceptability. The discrepancy in these results might be explained by the study's different methodological and sociodemographic characteristics (Alwi et al., 2021). As mentioned, in China, Saudi, and Indonesia, the sociodemographics, including the location/residence of the respondents, did not affect the acceptance of COVID-19 vaccination, which was corresponded to the interpretation of this study — "there are no significant differences in the level of acceptance in COVID-19 vaccination based on the district in Metro Manila." Furthermore, the researchers only focused on respondents residing in Metro Manila, and given that it is an urban area, it was

anticipated to obtain a high acceptance level. Based on the interpretation of the results, the respondents from Metro Manila had a high level of acceptance of the COVID-19 vaccine. Various studies supported this interpretation. A study conducted by Belsti et al. (2021) showed that 95% of their respondents from urban areas are willing to accept the COVID-19 vaccine. One survey in Bangladesh found that 81% of people in urban areas (metropolitan, district, and municipality) were eager to be vaccinated (Kalam et al., 2021). Compared to respondents in urban areas, respondents in rural regions had an 81% lower chance of adopting the COVID-19 vaccination in Bangladesh (Mahmud et al., 2021).

Along with this, Table 4.5 B also revealed that there were no significant differences in the level of urgency in COVID-19 vaccination based on the district in Metro Manila. The p-values, which were greater than 0.05, likewise suggested this interpretation. Moreover, the findings revealed that respondents had a moderate (μ = 2.50 - 3.24) to a high (μ = 3.25 - 4.00) level of urgency in COVID-19 vaccination, regardless of their location.

Table 4.5 B

Differences in the Level of Urgency in COVID-19 Vaccination Based on the District in Metro Manila

Vaccine urgency	District 1 n=29		District 2 n=40		District 3 n=9		District 4 n=61		F-value	df	p-value
	Mean	SD	Mean	SD	Mean	SD	Mean	SD			
I will get vaccinated immediately because I am knowledgeable of the health benefits of being vaccinated.	3.76	.636	3.70	.516	3.22	.441	3.67	.473	2.536	135	.059
I will get vaccinated immediately because I am aware that it ensures that people are safe from COVID-19 infection.	3.72	.702	3.65	.533	3.33	.500	3.72	.452	1.467	135	.226
I will get vaccinated immediately because the information about the COVID-19 is trustworthy.	3.60	.670	3.53	.554	3.33	.500	3.54	.502	.833	135	.478
I will get vaccinated immediately for immunization regardless of whether the vaccine has side effects or not.	3.34	.769	3.25	.927	3.22	.441	3.46	.565	.801	135	.495
I will get vaccinated immediately because waiting for natural immunity poses risks to my health.	3.62	.820	3.60	.545	3.33	.500	3.57	.644	.480	135	.697
I will get vaccinated immediately to minimize the need for washing hands or using alcohol.	2.10	1.175	2.15	1.051	2.22	.833	2.03	.912	.165	135	.920
I will get vaccinated immediately so as not to be afraid of crowded places outside.	2.55	1.021	2.90	.810	2.44	.726	2.72	.985	1.075	135	.362
I will get vaccinated immediately to prevent infection from COVID-19 variants.	3.48	.871	3.60	.632	3.44	.527	3.67	.473	.799	135	.496
I will get vaccinated immediately to avoid any hassle in public places or transportation.	3.10	.900	3.00	.961	3.22	.972	2.95	.939	.330	135	.804
Rate your level of urgency towards COVID-19 vaccination.	3.79	.559	3.75	.588	3.56	.527	3.74	.480	.461	135	.710
Total	3.34	.670	3.38	.628	3.11	.333	3.36	.517	.545	135	.653

According to a study conducted by Soares et al. (2021), the only factors that were linked to both refusal and delay in receiving the vaccine were the contextual factors, such as age and income; individual and group factors, such as the intentions in receiving the flu vaccine; COVID-19 influences, such as their confidence in the health service response during the

pandemic; worse perception of the adequacy of government-implemented measures; and perception that the information provides adequate protection. Furthermore, the results revealed in Table 4.5 B showed that the respondents had a moderate to high urgency in COVID-19 vaccination. Similarly to the level of acceptance, it was also expected that the level of urgency was high since the data collected by the researchers were from urban areas. This was supported by the study conducted by Sailee et al. (2022) wherein stated that COVID-19 vaccination coverage was lower in rural areas than in urban areas in the United States. Low coverage of COVID-19 vaccination in the United States attested that there was also a low level of urgency in COVID-19 vaccination within the said areas.

4.6. The Preferred Vaccine Type of the Respondents Based on the Mechanism of Action of the Vaccines

The preferred vaccines based on the mechanism of action of the vaccines was determined using a single question "Which among the types of vaccines do you prefer based on their mechanisms of action?" with Inactivated virus, Viral subunit, Viral vector, and RNA based vaccine as choices. Table 4.6 and Figure 4.6 depict the Preferred Vaccine Based on the Mechanism of Action of the vaccines. According to the responses of the participants of the study, the most preferred vaccine based on the mechanism of action of respondents was the RNA-based vaccine. 57.6% (n=80; N=139) of the respondents had stated that this was their preferred vaccine. The second most preferred vaccine was the Viral vector, wherein 18.0% (n=25; N=139) of the respondents had chosen this type of vaccine. 15.1% (n=21; N=139) had stated that their preferred vaccine based on the mechanism of action was Inactivated virus, which made this the third-most preferred vaccine. Lastly, the least preferred vaccine type was the Viral subunit which was chosen by 9.4% (n=13; N=139) of the respondents.

Table 4.6.
Preferred Vaccine Based on Mechanism of Action of the Respondents

Preferred Vaccine Based on Mechanism of Action	Frequency	Percentage (%)	Ranking
Inactivated virus	21	15.1	3
Viral subunit	13	9.4	4
Viral vector	25	18.0	2
RNA based vaccine	80	57.6	1
Grand Total	139	100%	

The RNA-based vaccine, which was ranked first in the preferred vaccine based on the mechanism of action, includes the vaccine brands Moderna and Pfizer. Moderna and Pfizer-BioNTech have created these RNA-based vaccines, a cutting-edge method that generates a protein from genetically modified RNA, which safely triggers an immune response (Mascellino *et al.*, 2021). The second most preferred vaccine, the Viral vector vaccine, includes the brands Astra-Zeneca Oxford, Janssen (Johnson & Johnson), and Sputnik V. Viral vector vaccines employ a virus that has been genetically modified not to cause illness but to create coronavirus proteins in order to safely induce an immune response (Mascellino *et al*., 2021). The inactivated virus, which was the third most preferred vaccine, involves the brands Sinovac, Sinopharm, and Bharat. Inactivated or weakened virus vaccines utilize a variant of the virus that has been inactivated or weakened but still elicits an immune response (Mascellino *et al.*, 2021). The least preferred vaccine, which was the viral subunit vaccine, includes the vaccine brand Novavax. To safely produce an immunological response, viral subunit vaccinations employ innocuous protein fragments or protein shells that resemble COVID-19.

A similar study was conducted by Sirikalyanpaiboon *et al.* (2021) at King Chulalongkorn Memorial Hospital in Thailand in order to determine the attitudes of physicians currently working at the said hospital towards specified vaccine technology. Comparable to the

results revealed in Table 4.6 and Figure 4.6, the mRNA vaccine was also the most preferred by the respondents in this study. It was chosen by 35.6% of physicians. However, this was followed by the inactivated virus vaccine (23%), which was the third most preferred vaccine as shown in the results of Table 4.6 and Figure 4.6, and the viral vector vaccine (17.3%), which was ranked second in the preference of vaccine based on mechanism of action of vaccines in Table 4.6 and Figure 4.6. 24.1% of the respondents in this study were undecided. For pandemic control, symptomatic condition prevention, and severe symptom prevention, the mRNA vaccine was also deemed the best out of the three, followed by the viral vector vaccine and the inactivated vaccine. Less than half of those surveyed thought the inactivated vaccine would effectively control the COVID-19 pandemic (44%) or prevent symptomatic sickness (48.8%). It was mentioned in this study that to increase vaccination program acceptance, efforts should be made to optimize individual vaccine choices while also expanding the availability of reliable data on vaccine safety and efficacy for each vaccine.

Based on a cross-sectional study by Rzymski *et al.* (2021), which was conducted in Poland and surveyed adult Poles, the respondents' awareness concerning the traditional vaccines affected their preference for vaccines based on the mechanism of action. This study revealed that the mRNA platform had the highest degree of confidence among all major vaccine technologies, with a significant proportion of those surveyed (>20 percent) unaware of the existence of vaccines made in the traditional way, which includes inactivated and live attenuated vaccines. VLP-based, inactivated, live attenuated, and protein vaccines were all unknown to a large percentage of those polled (25.6%, 25.4%, 21.8%, and 20.7%, respectively), but mRNA and vector vaccines were unknown to just 4.9 and 12.2% of the respondents. Given that inactivated and live attenuated vaccines against human viral infections have a long history of use and are

among the most effective preventative therapies, one may assume that they are also highly trusted. Contrary to this, vaccines created utilizing the mRNA platform were shown to have the highest level of confidence among those queried since the respondents do not recognize the existence of the traditional types of vaccines. As further attested by this study, age was a significant factor in determining trust in a particular type of vaccine, with individuals aged 50 years revealing a higher level of trust in all cases except mRNA.

To increase the level of acceptance, efforts should be made to optimize individual vaccine preferences while also expanding the availability of reliable data on vaccine safety and efficacy for each vaccine type (Sirikalyanpaiboon *et al*., 2021). Moreover, Rzymski *et al.* (2021) emphasized the importance of continuing to raise knowledge of more traditional vaccinations (such as inactivated and live attenuated), as well as their mechanism of action and safety profile. These vaccines have been in use against other diseases for a long time before the COVID-19 pandemic, while it is possible that understanding of the technology used to generate them is still limited and needs to be improved through many channels.

4.7. The Impact of the Mechanism of Action of Readily Available COVID-19 Vaccines on the Level of Vaccine Acceptance of Adults with Comorbidities

Table 4.7 showed that generally, there was a strong impact of the Mechanism of Action of Readily Available COVID-19 Vaccines on the Level of Vaccine Acceptance of Adults with Comorbidities as shown by the values of mean which was between 3.25 - 4.00.

Respondents strongly agreed with statement 1, “The mechanism of action of a vaccine is a significant factor in determining your acceptability of COVID-19 vaccines” (Mean = 3.324, SD

= 0.763), and statement 2, “The mechanism of action affects the efficacy of the vaccine” (Mean = 3.338, SD = 0.718), and statement 3 “Knowing the mechanism of action will increase the level of acceptance of COVID-19 vaccine” (Mean = 3.482, SD = 0.663). However, results showed that the respondents had a conflicting agreement in terms of their level of acceptance of the mechanism of action of readily available COVID-19 vaccines. This indicated that some of the respondents could have a strong or moderate impact.

Using a four-point Likert scale ranging from strongly disagree to strongly agree, the researchers measured agreement with a set of statements covering vaccine perceptions and concerns. Participants were asked to respond to a set of statements for each of the vaccine types (inactivated virus, viral vector, viral subunit, and RNA-based vaccine). Statement 1 discussed that mechanism of action was considered a significant factor by the respondents in determining the acceptability of COVID-19 vaccines, and Statement 2 tackled that mechanism of action affects the efficacy of the vaccine. Mechanism of action was frequently used to describe medications or treatments. It referred to how the medicine acts in the body at a molecular level and how it makes COVID-19 vaccines effective. Moreover, the vaccine's efficacy presents the effectiveness of each vaccine type (inactivated virus, viral vector, viral subunit, and RNA-based vaccine) which corresponded to the mechanism of action because it helped show how these vaccines can be effective in treating COVID-19 patients. This can aid in the understanding of the respondents on how vaccines work in their bodies.

Table 4.7.

Impact of the Mechanism of Action of Readily Available COVID-19 Vaccines on the Level of Vaccine Acceptance of Adults with Comorbidities

	n = 139	
Preferred Vaccine Based on Mechanism of Action	**Mean**	**SD**
The mechanism of action of a vaccine is a significant factor in determining your acceptability of COVID-19 vaccines.	3.324	0.763
The mechanism of action affects the efficacy of the vaccine.	3.338	0.718
Knowing the mechanism of action will increase the level of acceptance of COVID-19 vaccine.	3.482	0.663
Total	3.381	0.715

If proper information were provided to the public about the mechanism of action of each COVID-19 vaccine, people's level of acceptance and trust towards vaccines may increase or decrease in terms of their knowledge about this. According to Rzymski *et al.* (2021), a transition from the least trusted vaccination to the most widely accepted vaccine can be accomplished, provided expert groups, national authorities, and media coverage work together to make it happen. It also emphasized the importance of continuing to raise knowledge of more conventional vaccinations (such as inactivated and live attenuated), their mechanisms of action, and safety profiles.

Long before the COVID-19 pandemic, these vaccines (inactivated virus, viral vector, viral subunit, and RNA based vaccine) were in use against other diseases, albeit it is possible that understanding of the technology used to generate them and their mechanism of action was still limited and needed to be improved through other channels. The current study demonstrated that age and, to a lesser extent, education were associated with knowledge of the existence of certain vaccination technologies and the amount of faith placed in them. As a result of the public's heightened interest in vaccinations, the COVID-19 pandemic may be ideal for raising vaccine knowledge and acceptance, an opportunity that should not be overlooked.

Furthermore, before the first COVID-19 vaccines (BNT162b2 and mRNA-1273, both developed on the mRNA platform) were introduced in Poland, there appeared to be a high level of skepticism toward them, influenced by a massive spread of misinformation and scientifically unfounded claims about their mechanism of action and adverse effects of administration. Expert actions with the support of the media, on the other hand, have countered this. Only 20% of Poles stated a readiness to get vaccinated in the first surveys performed in November 2020. By December 2020, it had risen to 36%, and by mid-February 2021, it had risen to 55%. The present study backed up the idea that a strategy including experts based on consistent, high-quality information provided in a way that non-specialists can understand is critical in reducing vaccination apprehension. It also demonstrated that temporary factors with a particular vaccine may have a greater impact on trust in individuals with less education than those with tertiary education, highlighting the ongoing need for experts to be active in informing the general public and explaining peculiarities related to vaccine safety and efficacy that may be difficult to comprehend by those without an academic background.

The results of this study revealed that people's perceptions of COVID-19 vaccinations that have been approved vary greatly. It might also be susceptible to dynamic changes brought on by positive or negative news surrounding a specific vaccination. When choosing a vaccination for a certain population, these distinctions should be taken into consideration. In order to reduce vaccine hesitancy and increase vaccination rates in people at very high risk of severe COVID-19, it is critical to ensure that those at very high risk of severe COVID-19 are provided the vaccine(s) with the highest public trust level.

Lastly, statement 3 focused on determining if the mechanism of action increases the level of acceptance of COVID-19 vaccines. This might explain that vaccine hesitancy could be

addressed by increasing public awareness about vaccinations and their associated mechanisms of action through various public education techniques (Al-Qerem & Jarab, 2021). Around 30% of individuals with negative sentiments opposed vaccinations in general. Several studies have identified vaccine refusal strategies that might benefit COVID19 immunization.

For example, combating the transmission of misleading information and focusing on children and adolescents, who may not yet have strong feelings regarding vaccinations, might improve COVID-19 vaccine acceptance. In an Indonesian survey, 58% of responders and 79% of participants said that the lack of more information was a barrier. Healthcare practitioners play an important role since they supply much-needed information to patients and the wider public. Healthcare practitioners might utilize a methodology developed by Australian research to boost their trust in COVID19 vaccinations. Many participants in this study and another American study conducted expressed skepticism about vaccine hesitation or rejection.

The behavioral concerns of COVID-19 acceptability were reviewed in a paper released by the World Health Organization, and alternative techniques to enhance vaccination acceptance were offered. These included creating an enabling atmosphere and communicating openly to address people's fears and doubts about the vaccine's safety and efficacy. Public trust in the COVID-19 vaccine will grow due to social and political engagement, allowing the country to achieve herd immunity promptly.

This study may imply that vaccine preference does not necessarily change over time due to immunization (Kawata *et al.*, 2021). If this was the case, public education about the need for immunizations should begin immediately. An investigation into this issue has been deferred to a later date. Additionally, post-marketing surveillance techniques that are adequate can aid in

maintaining vaccination trust and adoption (Forman *et al.*, 2021). As immunizations are given to a community, governments require procedures to monitor and assess data on efficacy and adverse effects closely. Again, success depends on the transparency and cooperation of these procedures.

It was crucial to determine which metrics were the most relevant for measuring and monitoring a vaccine's quality and efficacy (e.g., transmission rates, case fatality, side effects) and how these data can be shared with other countries. Some nations have begun to monitor COVID-19 vaccines, but an international agency, such as the WHO, may be entrusted with further defining guidelines for attempts to monitor vaccination safety and effectiveness as they are delivered throughout the world. According to current research, the COVID-19 vaccinations that have been approved are extremely safe, with a minimal chance of serious side effects. Still, it was important to keep forming consortiums to track the safety and efficacy of these products so that future vaccines and programs may be improved. Real-world vaccination assessments might be undertaken to separate the vaccine's influence alone from those of nonpharmaceutical interventions (NPIs) like shelter-in-place orders or social distance.

4.8 The effect of the respondents' knowledge, sources of information, attitude, practice of health protocols, preference of COVID-19 vaccine on the levels of acceptance and urgency of COVID-19 vaccination among adults with comorbidities in Metro Manila

Statistical Treatment.

Partial Least Squares - Structural Equation Analysis (PLS-SEM) was conducted to test the Hypotheses 4, 5, 6, 7, 9, 10, 11, and 12. This analysis has two phases; the first is the

evaluation of the measurement model or instrument using Confirmatory Factor Analysis, and the second is the Structural Equation Analysis.

According to Hair *et al.* (2010), the measurement model's convergent validity, construct reliability, and discriminant validity can be assessed using Confirmatory Factor Analysis.

Evaluation of Measurement Model

Table 4.8 shows the Latent Variable Coefficients, which are the measures of the convergent validity, construct reliability, and internal consistency of the instrument.

The coefficients presented in Table 4.8 A were used to assess the convergent validity, construct reliability, and internal consistency of the sets of indicators. Construct reliability and Cronbach's alpha are commonly used in evaluating construct reliability (Roldan & Sanchez-Franco, 2012; Kock, 2017). The values of the Cronbach's alpha (CA) and construct reliability (CR) must be at least 0.7 to indicate good reliability and internal consistency (Nunnally, 1978; Fornell & Larcker, 1981; Nunnally & Bernstein, 1994).

Based on table 4.8 A, results showed that the Cronbach Alpha of Acceptance Level (.708), Knowledge (.759), Source of Information(.789), Attitude (.772), Practice of Health Protocols (.946), Preferred Vaccine based on the mechanism (.823), and Vaccine urgency (.860) satisfied the criterion for reliability. Likewise, the value of composite reliability of Acceptance Level (.718), Knowledge (.847), Source of Information (.775), Attitude (.735), Practice of Health Protocols (.823), and Preferred Vaccine based on the mechanism (.821), and Vaccine urgency (.860) fitted the criterion for internal consistency of the research instrument.

Table 4.8 A
Latent Variable Coefficients

Construct	Items	Factor Loading	p-value	Cronbach's Alpha	Composite reliability	Ave. Variances Extracted
Acceptance Level				**0.708**	**0.718**	**0.613**
	LA 1	0.816	< .001			
	LA 2	0.752	< .001			
	LA 3	0.795	< .001			
	LA 4	0.786	< .001			
	LA 5	0.766	< .001			
Knowledge				**0.759**	**0.851**	**0.502**
	Know 1	0.672	< .001			
	Know 1	0.845	< .001			
	Know 1	0.767	< .001			
	Know 1	0.569	< .001			
	Know 1	0.698	< .001			
	Know 1	0.728	< .001			
	Know 1	0.699	< .001			
	Know 1	0.787	< .001			
	Know 1	0.545	< .001			
Source of Information				**0.789**	**0.877**	**0.706**
	SF_2	0.740	< .001			
	SF_3	0.906	< .001			
	SF_4	0.858	< .001			
Attitude				**0.772**	**0.725**	**0.503**
	Attitude_1	0.503	< .001			
	Attitude_2	0.526	< .001			
	Attitude_3	0.673	< .001			
	Attitude_4	0.519	< .001			
	Attitude_5	0.613	< .001			
	Attitude_6	0.713	< .001			
	Attitude_7	0.517	< .001			
	Attitude_8	0.792	< .001			
	Attitude_9	0.801	< .001			
Practice of Health Protocols				**0.946**	**0.960**	**0.826**
	Practices_1	0.931	< .001			
	Practices_2	0.955	< .001			
	Practices_3	0.919	< .001			
	Practices_4	0.938	< .001			
	Practices_5	0.798	< .001			
Preferred Vaccine based on mechanism				**0.823**	**0.895**	**0.739**
	Pref Mech 1	0.892	< .001			
	Pref Mech 1	0.810	< .001			
	Pref Mech 1	0.875	< .001			
Vaccine urgency				**0.860**	**0.889**	**0.517**
	VU 1	0.857	< .001			
	VU 2	0.862	< .001			
	VU 3	0.845	< .001			
	VU 4	0.730	< .001			
	VU 5	0.751	< .001			
	VU 6	0.514	< .001			
	VU 7	0.564	< .001			
	VU 8	0.785	< .001			
	VU 9	0.534	< .001			
	VU 10	0.607	< .001			

Furthermore, convergent validity evaluates the quality of a research instrument's set of items or indicators. **Convergent validity indicates that the participants understand each construct's items or question statements in the same manner as they were intended by the designers of the items or question statements (Kock, 2017).** Item loading is the correlation between items and constructs (Amora, Ochoco, & Anicete, 2016; Kock, 2017), and it measures the convergent validity. If the values of item loadings are at least 0.5 and its p-values are less than .05, convergent validity was achieved (Hair, Anderson, & Tatham, 1987; Hair, Black, Babin, & Anderson, 2009; Kock, 2017). The research instrument satisfied the criterion as seen in Table 4.8 A. **Similarly, the average variance extracted (AVE) determines the amount of variation derived from each construct's elements compared to the amount attributable to measurement error (Chin, 1998; Amora et al., 2016). Hair, Ringle, and Sarstedt (2011) stated that the construct has acceptable validity if the average variance extracted (AVEs) are higher than the threshold value of 0.50.** In table 4.8 A, results revealed that the item loadings of all indicators were significant (.503 to .950, $p < .001$), and the range of average variance extracted values (.502 - .826) met the required value, which indicated that the research instrument has convergent and acceptable validity.

Discriminant Validity

Table 4.8 B exhibited the latent variable with square roots of AVE coefficients to measure the discriminant validity of the instrument. **Discriminant validity assesses if the statements associated with each latent variable were not confusing when respondents answered the questionnaire given to them. Moreover, it tests whether the statements related to one variable, for instance, are not confusing with the statements connected with other variables (Kock, 2017).** For each variable, the square root of the AVEs should be greater than any of the

correlations involving the said variable. If the values at the main diagonal are higher than off-diagonal elements, the latent variables have acceptable discriminant validity (Fornell & Larcker,1981). Results showed that the research instrument had a discriminant validity, as shown by the values on the main diagonal. This indicated that the measures used in the study had discriminant validity.

Table 4.8 B

Square Roots of Average Variance Extracted (AVE) coefficients

Latent Variables	Level of Acceptance	Knowledge	Sources of Information	Attitude	Practices of health protocols	Preference based on Mechanism	Vaccine Urgency
Level of Acceptance	**0.783**						
Knowledge	0.634	**0.709**					
Sources of Information	0.350	0.448	**0.84**				
Attitude	-0.467	-0.338	-0.101	**0.709**			
Practices of health protocols	0.390	0.600	0.488	-0.093	**0.909**		
Preference based on Mechanism	0.250	0.378	0.397	-0.030	0.520	**0.860**	
Vaccine Urgency	0.639	0.705	0.489	-0.245	0.512	0.365	**0.719**

Diagonal values are the square roots of AVE and off-diagonals are inter-construct squared correlations

Evaluation of Structural Model and Hypothesis

Table 4.8 C showed the overall model fit measures of the proposed model. Various global fit indices were used to test the quality of the model. These indices were utilized to establish the acceptability of the emerging structural model. The primary evaluation criteria for the structural model are the level of significance of the Average Path Coefficients (p-value of APC) and the

level of significance of the Average R- squared (p-value of ARS). Notably, the Average Path Coefficient (APC = 0.217, p = .002) and Average R-squared (ARS = 0.572, p < .001) were better than the acceptable range (p < .05). This connoted that the emerging model has a good fit**.**

Table 4.8 C
Model Fit Indices of the Emerging Model

Measure	Estimate	Threshold	Interpretation
Average Path Coefficient (APC)	0.217, p =.002	p < .05	Acceptable
Average R-squared (ARS)	0.572, p <.001	p < .05	Acceptable
Average block VIF (AVIF)	1.705	≤ 3.3	Ideally
Average Full Collinearity VIF (AFVIF)	2.037	≤ 3.3	Ideally
Tenenhaus Goodness of Fit (GoF)	0.578	≥ .36	Large

Emerging Model

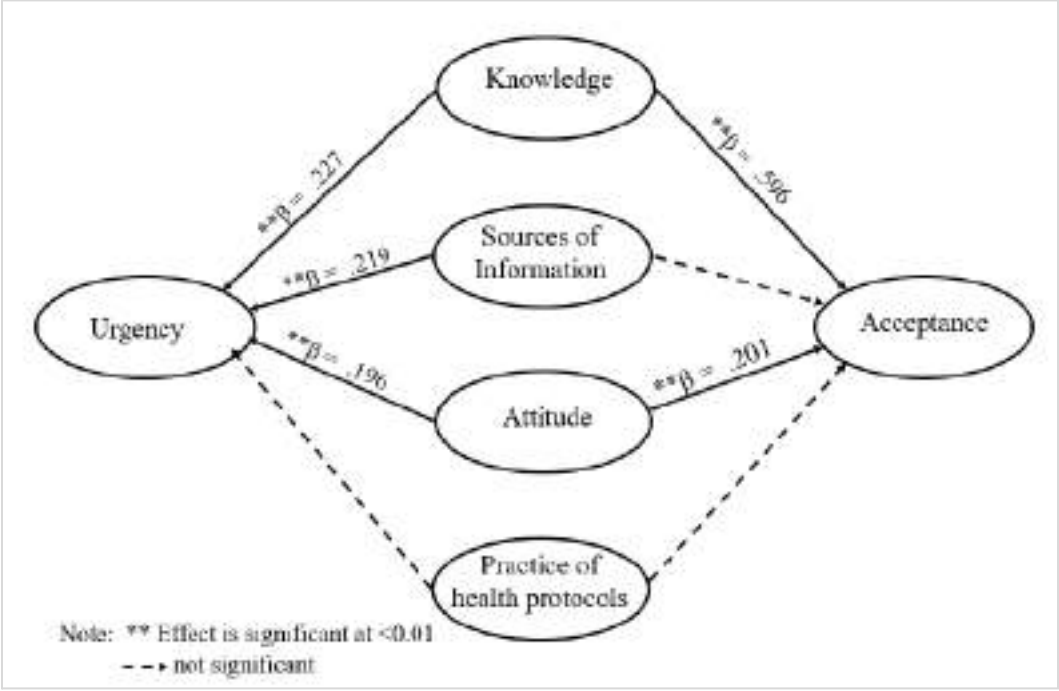

Figure 4.8 The emerging model

The study was intended to test a hypothesized model that depicted the influence of knowledge, sources of information, attitude, and health protocol practices on the perceived vaccine urgency and level of acceptance people with comorbidities, as shown in Figure 4.8 A.

As depicted in Figure 4.8 A, based on the findings of this study, knowledge, and attitude had a significant effect on the levels of acceptance and urgency of adults with comorbidities in Metro Manila. On the other hand, sources of information only had a significant effect on the level of urgency. Lastly, it was revealed that the practice of health protocols did not have a significant effect on the levels of acceptance and urgency of the respondents.

Path Analysis and Hypotheses

The following table presents the result of the hypothesis testing, which addressed research problem 7.

Table 4.8 D
Path coefficients and p-values

Path		Path Coefficients (β)	P -values	Effect Sizes (f^2)	Effect Size Interpretation (Cohen, 1988)**	Description	Decision
H4: Knowledge	→ Level of acceptance	0.596	<0.001	0.443	Large	Significant	Accept H4
H5: Sources of information	→ Level of acceptance	0.059	0.241	0.022	Small	Not Significant	Reject H5
H6: Attitude	→ Level of acceptance	0.201	0.007	0.098	Small	Significant	Accept H6
H7: Practice of health protocols	→ Level of acceptance	-0.023	0.395	0.009	NA	Not Significant	Reject H7
H9: Knowledge	→ Vaccine Urgency	0.556	<0.001	0.399	Large	Significant	Accept H9
H10: Sources of information	→ Vaccine Urgency	0.219	0.004	0.119	Small	Significant	Accept H10
H11: Attitude	→ Vaccine Urgency	0.196	0.008	0.070	Small	Significant	Accept H11
H12: Practice of health protocols	→ Vaccine Urgency	-0.036	0.335	0.019	NA	Not Significant	Reject H12

***0.02 – small, 0.15 – medium, 0.35 - large*

Effect of Knowledge on the Level of Acceptance

Results showed that the Knowledge of the respondents with regards to COVID-19 vaccines had a positive significant effect on the level of acceptance ($\beta = 0.596$, $f^2 = .443$, $p = <0.001$) as depicted by the positive value of β coefficient and the p-value of less than 0.05. This proved that Knowledge had a direct causal relationship with vaccination acceptance. It had a strong influence, as evidenced by the f^2 value of more than 0.15 (Cohen, 1988). As a result, hypothesis 3 was validated: Knowledge had a positive influence on the level of vaccine acceptance of COVID-19 vaccination among adults with comorbidities.

Similar results were documented by Walker *et al.* (2021) in their study entitled "Vaccine Acceptance and Its Influencing Factors: An Online Cross-Sectional Study among International College Students Studying in China". According to their data, the rate of vaccination acceptance has been observed to be influenced by a lack of knowledge about the COVID-19 vaccine. Despite the fact that 67% had an acceptable understanding of general vaccination, there were still knowledge gaps with respect to the vaccine specifically in terms of the COVID 19 vaccine's main side effects. This lack of knowledge may influence their decision to vaccinate. A person's vaccination decision might be influenced by a lack of knowledge and misconceptions caused by disinformation (Dubé *et al.,* 2013). Knowledge is one of the components of the Health Belief Model (HBM), and it plays a critical role in understanding pandemic risks, so people should be up to date with current information about COVID-19 through prominent channels of information such as television and social media to promote vaccine acceptance (Huynh *et al.*, 2021).

Effect of Attitude on Level of Acceptance

The results showed that Attitude among adults with comorbidities had a positive significant effect on the level of vaccine acceptance of COVID-19 vaccination ($\beta = 0.201$, $f^2 = 0.098$, and $p = 0.007$), as revealed by the positive value of β coefficient and the p-value of less than 0.05. This suggested that Attitude had a causal relation with vaccine acceptance, despite having a small influence, as evidenced by the f^2 value of less than 0.15 (Cohen, 1988). As a result, hypothesis 6: Attitude positively influenced the level of vaccine acceptance of COVID-19 vaccination among adults with comorbidities was accepted.

According to a study conducted by Danabal *et al.* (2021), the COVID 19 vaccines were viewed favorably by more than half of the respondents. They were divided into four groups based on their opinions—the first preferred natural immunity over vaccines and low concern about side effects. Second, there was a high level of trust in vaccines and a low amount of mistrust. The third cluster had a high level of concern about side effects but low faith in vaccines, whereas the fourth had a high level of trust in vaccines but a low preference for natural immunity. It was comparatively similar to this study since the questionnaire was also divided into three clusters—attitude toward the safety of COVID-19 vaccines, towards the efficacy of COVID-19 vaccines, and towards alleged risks posed by COVID-19 vaccines. The first cluster consisted of one positive statement: "I can feel that my family is protected after getting vaccinated against COVID-19," and the results revealed that 98% showed a positive attitude. Furthermore, in the second cluster, one positive statement said, "I believe that I can rely on vaccines to stop severe COVID-19 disease." This statement received 95% of positive responses.

Similarly, a study conducted by Wang *et al*. (2021) proved that respondents' intention to get vaccinated against COVID-19 was influenced by their positive views about the value of immunization. Bai *et al.* (2021) also hypothesize that differences in attitudes regarding COVID-19 vaccinations among parents and other family members of rural and urban students may impact the acceptance rate of COVID-19 vaccines.

Effect of Sources of Information and Practice of Health Protocols on Level Acceptance

Based on Table 4.8, Source of Information ($\beta = 0.059$, $f^2 = 0.021$, and $p = 0.241$) and Practice of Health Protocols ($\beta = -0.023$, $f^2 = 0.009$, and $p = 0.395$) of respondents did not have a significant effect on the level of acceptance as shown by the p-value of greater than 0.05. This indicated that sources of information and practices of health protocols will not affect the respondent's level of acceptance leading to the rejection of hypotheses 5 and 7: Sources of Information and Practice of Health Protocols positively influenced the level of vaccine acceptance of COVID-19 vaccination among adults with comorbidities.

According to Kim *et al.* (2021), overall, while the behavior score was positively associated with the knowledge score (adjusted coefficient 0.275, $p = 0.01$) when all covariates were held constant, the association was significantly stronger when the primary source of information was social media, podcasts, or unofficial websites (interaction term coefficient 0.1, $p = 0.031$), or family, friends, and colleagues (interaction term coefficient 0.158, $p = 0.01$), in comparison to when the primate source of information was official (reference category). The correlation was much weaker when the major source of information was conventional media

(interaction term coefficient -0.109, p = 0.044) or the government or other official sources (interaction term coefficient -0.096, p = 0.018).

In conclusion, primary sources of information may be partially responsible for varying levels of COVID-19-related knowledge, reflecting different sociodemographic characteristics of each source's main audience and their heterogeneous associations with individuals' engagement with COVID-19-related protective behaviors. The findings implied that the primary source of information may operate as a moderator in the pathway from knowledge to behavior and that sources of information and how each source communicates information to the public might be a concrete target of intervention for better risk communication.

In Gondar City, Northwest Ethiopia, only 8.64%, 14.29%, and 9.97% of respondents had followed the COVID-19 prevention guidelines by keeping their physical distance, washing their hands often for at least 20 minutes, and wearing a facemask, respectively. A significant percentage of teachers said that they rarely kept their physical distance, washed their hands often for at least 20 seconds, and used face masks, respectively (Handebo, 2021). Reluctance on receiving the COVID-19 vaccine appears to be correlated to compliance with other NPI COVID-19 parameters. According to a study, those who said it was challenging to follow official COVID-19 prevention measures, for example, were more likely to be vaccine apprehensive. Other research also found that less compliant persons with COVID-19 control measures are more likely to be vaccine-hesitant (Orangi *et al.*, 2021). Based on these studies, the practice of health protocols had a significant effect on COVID-19 vaccination acceptance which contradicted the result obtained in this study, whereby the practice of health protocols does not have a substantial impact since the p-value acquired was above 0.05.

Effect of Knowledge on Vaccine Urgency

Based on Table 4.8 D, the knowledge of the respondents had a positive significant effect on the perceived vaccine urgency ($\beta = 0.556$, $f^2 = 0.399$, $p < 0.001$) as shown by the β coefficient, which was positive and p-value of less than 0.05. This indicated that as respondents' knowledge improves, the vaccine urgency will also increase. Further, knowledge had a large effect size on urgency, as shown by the value of $f^{2,}$ which was greater than 0.35 (Cohen, 1988), leading to the acceptance of hypothesis 9: Knowledge positively influences the urgency of COVID-19 vaccination among adults with comorbidities.

According to a study by Elgendy & Abdelrahim (2021), public knowledge was critical for the promotion of vaccine acceptance and the reduction of vaccine hesitancy among the community. They also found out that 90% of their respondents were considered knowledgeable about vaccination and had positive attitudes towards vaccination. They also stated an increase in public knowledge in order to achieve high vaccine usage. This can be comparable to the reason why the respondents' knowledge affects their urgency. The possibility of being more urgent toward the COVID-19 vaccination increases when they have enough knowledge of the virus and its risks. This can be proven in the study by Joshi *et al.* (2021) that knowledge and awareness of healthcare workers about the COVID-19 infection may lead them towards accepting vaccination for the protection of themselves and their families. This was supported by the claim of Harapan *et al.* (2020) that the higher perceived susceptibility can lead to more vaccine acceptance, which can result in an urgent vaccination of people with comorbidities in Metro Manila.

Effect of Sources of Information and Attitude on Vaccine Urgency

Based on Table 8, sources of information ($\beta = 0.219$, $f^2 = .119$, $p = 0.004$) and attitude ($\beta = 0.196$, $f^2 = .070$, $p = 0.008$) had a positive effect on the perceived vaccine urgency. The β coefficient was positive, and the p-value was less than 0.05, which indicated that as respondents' sources of information and attitude increased, so as their urgency to get vaccinated. There were other factors that can influence vaccine urgency in comorbid adults, and sources of information account for 11.9%. On the other hand, the attitude also had other factors that influenced vaccine urgency of comorbid with a result of 7%. Despite having a small effect size, sources of information and attitude had a causal relation with vaccine urgency, as evidenced by the f^2 value of less than 0.15 (Cohen, 1988). As a result, hypothesis 10: Sources of Information positively influenced the urgency of COVID-19 vaccination among adults with comorbidities, and hypothesis 11: Attitude positively influenced the urgency of COVID-19 vaccination among adults with comorbidities, was deemed to be accepted.

According to a study conducted by Gehrau et al. (2021) in a German population, experts and health authorities, who were rarely included as information sources but are the most trusted by Germans, were the most widely used sources of health information, as opposed to mass media such as television, radio, and newspapers. The findings of their study suggested that people who have a high level of trust in television-based health information were more likely to get vaccinated, that reading and trusting local newspapers' health reporting has a positive effect on COVID-19 vaccination intention, and that people who used and trust information from experts and official authorities were more likely to get vaccinated. Meanwhile, information from social media or alternative information sources cannot claim significant usage or trust levels due to disseminated fake news and misleading information and hence is ineffective in improving

vaccination intentions (Gehrau *et al.*, 2020). This supports the claim that information sources have a significant impact on a population's vaccine intention and urgency and that strategic health communication should use information derived from experts and public health authorities and should be disseminated mainly through the mass media. In particular, health-related information stemming from alternative sources should be rigorously reviewed since they tend to publish misleading information and fake news, which can cause distrust in COVID-19 vaccination campaigns.

The study of de Freitas *et al*. (2021) implicated 49.6% (n=305) of their participants who said they never or rarely searched for information, but their most trusted sources come from health sectors like health workers and the Ministry of Health. Furthermore, as stated by de Freitas *et al.* (2021), people who had high levels of trust in the medical sector were also less likely to believe in misinformation (β: -0.03; 95% CI: -0.05- -0.01), while people with lesser health literacy were more likely to believe in conspiracies (β: 0.09; 95% CI: 0.03- 0.15) and misinformation (β: 0.03; 95% CI: 0.02- 0.04). This could be a supporting explanation as to why sources of information appeared to have a small effect on vaccine urgency as people tend to rely more on the updates of health sectors rather than searching for information on their own. Moreover, increasing trust and confidence in the medical sector was effective in COVID-19 vaccine willingness rates.

Positive attitudes toward COVID-19 vaccines were seen in other countries. In Libya, 78% of the participants had a positive attitude toward the COVID-19 vaccine (Elhadi *et al*., 2021). Moreover, in Indonesia, the study of Harapan *et al*. (2016) also revealed that Indonesian people have more positive attitudes towards vaccination. In addition, a study in urban and rural places in Tamil Nadu, India has also shown a positive attitude towards the COVID-19 vaccine

(Danabal *et al*., 2021). Meanwhile, in Bangladesh, researchers obtained an overall greater score which resulted in more positive attitudes toward COVID-19 vaccines (Islam *et al.*, 2021). The author has concluded that this 78% is associated with females, which is important since the engagement of women in household-level education and encouragement of COVID-19 vaccines can lead to improved vaccination programs. Improved vaccination programs will eventually lead to more positive attitudes toward the COVID-19. Comparing these studies to the results obtained, people with comorbidities in Metro Manila also had a positive attitude toward COVID-19 vaccination. Hence, people with comorbidities in Metro Manila were urgent in getting the vaccine for the COVID-19. This proves that hypothesis 11, which was created beforehand, was accepted.

A study by Islam *et al.* (2021) has shown that attitudes about a particular illness not being preventable via a vaccine can affect the willingness of the residents in Bangladesh. Moreover, Danabal *et al.* (2021) stated that trust in the effectiveness of the vaccine, mistrust in the health system and the vaccines, concern regarding adverse reactions of the vaccines, and preference for natural immunity compared to the vaccines were the main dimensions of the attitudes towards the COVID 19. Some of these can also possibly be the reason why attitudes toward COVID-19 vaccination have a small effect on vaccine urgency COVID-9 vaccination. The urgency of the respondents had a small effect on the vaccine urgency since their confidence was rooted in the safety and effectiveness of the vaccine, the healthcare delivery system, and policymakers (El-Elimat *et al.*, 2021).

Effect of Practice of Health Protocols on Vaccine Urgency

Table 4.8 D states that the practice of health protocols ($\beta = -0.036$, $f^2 = 0.019$, $p = 0.335$) had no significant effect on the urgency of people with comorbidity since the obtained p-value was greater than 0.05. This indicates that the practice of health protocols did not affect the urgency of the people with comorbidities in Metro Manila, which yielded a rejected hypothesis 12: Practice of Health Protocols positively influenced the urgency of COVID-19 vaccination among adults with comorbidities. The f^2 value of less than 0.02 also showed that the practice of health protocols has no effect on the level of vaccine urgency.

In a different light, Elgendy & Abdelrahim (2021) have reported that the majority of the respondents are willing to take the preventive measures that the government imposed to prevent the spread of the virus. This indicated that most respondents were aware of the possible outcome when the COVID-19 virus infects them. Moreover, the majority of the respondents believed that it was essential to perform preventive safety measures to protect personal and public health against the said virus. It is recommended to have an effective vaccine campaign to improve the vaccine urgency towards people with comorbidities in Metro Manila, Philippines. The success of the awareness campaign means that most people with comorbidities in Metro Manila are willing to be vaccinated and will encourage their friends and family to be vaccinated (Elgendy & Abdelrahim, 2021). Moreover, Al-hanawi *et al.* (2020) also stated that females were found to have more positive practices toward non-pharmaceutical preventive practices. These studies contradicted the result that Table 4.8 D had shown. Table 4.8 D indicated that people with comorbidities in Metro Manila had a negative attitude toward the COVID-19 vaccines since the β coefficient was negative. On a more positive note, the β coefficient ($\beta = -0.037$) obtained closer to 0 suggests that as the negative practices decrease, the level of urgency increases.

4.9 The Factor that Contributes the Most to the Level of Acceptance and Urgency of COVID-19 Vaccination Among Adults with Comorbidities

Based on the results presented in Table 4.9 A, the factor that contributed the most to the level of acceptance is hypothesis 4: Knowledge (f^2= 0.443). Knowledge was the only hypothesis with large effect size, as exhibited by the effect size of at least 0.35. This indicated that Knowledge highly contributed to the level of acceptance of COVID-19 vaccination among adults with comorbidities. Knowledge was followed by hypothesis 6: Attitude (f^2 = 0.098), hypothesis 8: Preference-based on the mechanism of action (f^2 = 0.024), and hypothesis 5: Sources of information (f^2 = 0.022), all of which had a small effect size as shown by the value of at least 0.02. Lastly, hypothesis 7: Practice of health protocols (f^2 = 0.009) was deemed the only hypothesis to have a not applicable (NA) effect with a value of less than 0.02. This suggested that the Practice of health protocols did not append to the levels of acceptance of COVID-19 vaccination among adults with comorbidities. Hence, the Practice of health protocols did not affect the level of acceptance of respondents.

Table 4.9 A

The Factor that Contributes the Most to the Level of Acceptance of COVID-19 Vaccination Among Adults with Comorbidities

Path		Effect Sizes (f^2)	Effect Size Interpretation (Cohen, 1988)**	Rank
H4: Knowledge	→ Level of Acceptance	0.443	Large	1
H5: Sources of information	→ Level of Acceptance	0.022	Small	4
H6: Attitude	→ Level of Acceptance	0.098	Small	2
H7: Practice of health protocols	→ Level of Acceptance	0.009	NA	5
H8: Preference based on mechanism of action	→ Level of Acceptance	0.024	Small	3

***0.02 – small, 0.15 – medium, 0.35 - large*

Knowledge contributes the most to the level of acceptance, based on the data shown in Table 4.8 A. Knowledge includes disease transmission, preventive considerations, and vaccine information which are important to increase the vaccine acceptance which will also lead to higher urgency of the population (Elgendy & Abdelrahim, 2021). Additionally, the study by Lee *et al*. (2013) stated that more than half of the unvaccinated patients are more interested in getting the vaccine once they are provided vaccine information. This proves that the knowledge affects the levels of acceptance of the respondents. Moreover, as revealed in the study conducted by Al-Marshoudi *et al.* (2021), knowledge of COVID-19 has an impact on vaccine acceptance. Individuals who showed a high level of knowledge of the disease, its symptoms, and transmission were more inclined to wish to be vaccinated against COVID-19. The study also mentioned that this was consistent with previous research, which found that having a high level of knowledge was related to a more optimistic attitude and perception of accepting the vaccine. The higher the level of knowledge of COVID-19 symptoms, transmission channels, and

preventive and control strategies, the stronger it is linked to the willingness of the respondents to get vaccinated (Kourlaba *et al.*, 2021).

The study conducted by Tae *et al.* (2013) revealed that awareness about the vaccine might improve the vaccination rate in the inoculation of the Herpes Zoster vaccine. This may be applied to the COVID-19 vaccine since both of them have similarities in terms of the process of vaccination. Since the knowledge greatly affects the level of acceptance of the respondents, immediate action about correct information dissemination must take place before inoculating the vaccine (Islam *et al.*, 2021). Moreover, Bianco *et al.* (2019) revealed that misinformation on social media and attitudes about a particular illness not being preventable through the inoculation of vaccines are associated with the respondents being hesitant. This leads to a low acceptance level of the respondents. Therefore, effective information dissemination and correct information must be given to the population to improve the acceptance level of the respondents. However, gaining the trust of the population to vaccinate includes the dissemination of transparent and accurate information about vaccines' safety, and efficacy is crucial (Siegrist *et al.*, 2014).

For vaccine urgency, as presented in Table 4.9 B, hypothesis 9: Knowledge had the most contribution to the level of vaccine urgency, as indicated by it having the only large effect size (f^2 = .399) greater than 0.35 among the four hypotheses. It was then followed by hypotheses 10: Sources of Information (f^2 = .119), hypotheses 11: Attitude (f^2 = .070), and finally, hypotheses 12: Practices of health protocols (f^2 = .019) which had the smallest value for effect size. Although these three hypotheses have different effect sizes, all of them were considered to have small effect sizes as their values were not greater than 0.15 to be considered medium effect sizes. Knowledge associated with vaccine urgency was assessed by a four-point Likert scale. For questions 1 and 2 of vaccine urgency, those who answered Strongly Agree (4) and Agree (3)

were considered correct, while those who answered Disagree (2) and Strongly Disagree (1) were regarded as incorrect. As a result, it was deduced that if the respondents' knowledge is high, the respondents' level of vaccine urgency will be high as well.

Table 4.9 B

The Factor that Contributes the Most to the Level of Vaccine Urgency of COVID-19 Vaccination Among Adults with Comorbidities

Path		Effect Sizes (f^2)	Effect Size Interpretation (Cohen, 1988)**	Rank
H9: Knowledge	→ Vaccine Urgency	0.399	Large	1
H10: Sources of information	→ Vaccine Urgency	0.119	Small	2
H11: Attitude	→ Vaccine Urgency	0.070	Small	3
H12: Practice of health protocols	→ Vaccine Urgency	0.019	NA	4

***0.02 – small, 0.15 – medium, 0.35 - large*

Based on the results shown in Table 4.9 B, it is distinct that knowledge has the highest effect on the level of vaccine urgency of COVID-19 vaccination among adults with comorbidities. Knowledge is critical in avoiding the delay in receiving vaccines. According to a study conducted by Elhadi *et al.* (2021), only 14.9% of their survey participants believed that the advantages of vaccination outweigh the risks of COVID-19, leading to hindrance and delays in accepting the vaccine. Hence, health literacy and knowledge significantly impacted the desire to follow health guidelines, which is critical to avoiding negative pandemic outcomes. The researchers also added that an educational framework for the general public must be developed to explain hazards of vaccination delay or avoidance, as this will limit government efforts to contain the pandemic.

According to Giannakou *et al*. (2022), increased general-vaccine knowledge (i.e. better vaccination information can lead to fewer misconceptions and/or less personal views guiding

vaccine decisions) was linked to a higher likelihood of supporting mandatory vaccination. Vaccine-related information has been identified as a predictor of vaccination intention in earlier studies, showing that a better understanding of vaccines can drive people to be vaccinated. In addition to the findings of Giannakou *et al*. (2022), they discovered that when the benefits of mandated vaccination programs are clearly stated, the public's view towards it appears vital and necessary. Linking these findings to the study's questionnaire, two questions under the Vaccine Urgency category were associated with Knowledge. These were the statements: "I will get vaccinated immediately because I am knowledgeable of the health benefits of being vaccinated." and "I will get vaccinated immediately because I am aware that it ensures that people are safe from COVID-19 infection". The two statements focused mainly on the respondent's knowledge regarding health benefits and vaccine efficiency, in which as stated above, increased general-vaccine knowledge and increased understanding of benefits can positively influence the drive of people to get vaccinated. As a result, the hypothesis that Knowledge has a positive inclination toward vaccine urgency and presents to be the highest predictor appears to be supported.

CHAPTER V:

SUMMARY, CONCLUSION, AND RECOMMENDATION

The COVID-19 pandemic has been the utmost concern of public health and safety for the past few years. The highly transmissible nature of the disease, along with its extensive range of symptoms and its numerous death toll, has made it one of the deadliest pandemics in the history of mankind. Due to the pandemic's severity, governments have enforced lockdowns, and schools and other public places have been closed, impacting people's lives.

To decelerate the spread and severity of the COVID-19 pandemic, vaccines by various brands from different countries have been made available. These vaccines were created with the intention of preventing symptomatic infections of the COVID-19 disease, subsequently reducing the chances of contracting a more severe prognosis. The risk of having a severe case of COVID-19 was increased in patients with comorbidities belonging to category A3. Thus, they should be taking measures to prevent COVID-19 infection. But regardless of the availability of the COVID-19 vaccines, vaccine hesitancy still happens. Complacency, convenience, fear of needles, or lack of awareness about how vaccines work are only a few of the variables that impact vaccination acceptance. According to data analysis, vaccination acceptance is mostly motivated by a desire to protect oneself from COVID-19, with side effects being the most common source of concern.

This study aimed to shed light on the levels of acceptance and urgency toward the COVID-19 vaccine among adults with comorbidities in Metro Manila. The data and conclusions revealed in this study can be used to help governments, institutions, and organizations develop sustained improvements in the implementation of health protocols and management of the

pandemic by providing them insight as to what determinants affected vaccine acceptance. This study can also be used to raise awareness in the public communities with regard to COVID-19 and the importance of vaccination amongst adults with comorbidities who are more vulnerable. This study also aimed to give an update on the current knowledge about the levels of acceptance and urgency of the adult Filipino community who have comorbidities towards the COVID-19 vaccine. With the few local literatures available with regards to the levels of acceptance and urgency of comorbid Filipino adults towards the COVID-19 vaccine, the results of this study contributed to the existing knowledge, and with the recommendations of this study, future researchers may be able to dive deeper into more detailed discussions about this topic.

A quantitative descriptive-correlational research design was utilized through a cross-sectional study to identify the factors that influenced the level of acceptance and urgency of comorbid adults in Metro Manila. Stratified purposive sampling was used, and a total number of 139 respondents completed the survey that was disseminated online to the 4 major districts of Metro Manila. Prior to this, respondents were contacted and referred through Facebook, Twitter, and Instagram, and the survey was accessed and answered through the use of Google Forms. The survey was divided into three (3) sections, namely: demographics, vaccine acceptance, and vaccine urgency. The survey contained a combination of adapted questions from previous and related research journals with the permission of the original researchers. The statistical analysis of the data utilized several statistical tools such as Frequency, Percentage, Mean, Standard Deviation, Inferential statistics, and Partial least squares structural equation modeling (PLS-SEM). The acquired data was additionally analyzed and interpreted using the Statistical Package for the Social Sciences (SPSS) version 25.0 software.

Summary of Findings

5.1 Demographic Profile of the Respondents

The demographic profile of the respondents was obtained based on their answers in the research instrument. The respondents were categorized based on their Age, Sex, Location, COVID-19 vaccination and booster shot status, Type of Comorbidities, and sources of information. To prove the respondents' COVID-19 vaccination and booster shot status, as well as the type of comorbidity that the respondents have, the researchers requested the respondents to upload any proof that justifies their vaccination status and the type of comorbidities that they have. The respondents were included based on their willingness to provide proof of their comorbidities.

The majority of the respondents belonged to the age group 18-24 years old, were female, were residing in District 2- Eastern Manila District, which is in Mandaluyong, Marikina, Pasig, Quezon City, and San Juan, were fully vaccinated, were able to receive a booster shot, were diagnosed with hypertension, and were gathering their information on the internet in general.

5.2 Differences in the Levels of Acceptance and Urgency of the COVID-19 Vaccine among Adults with Comorbidities in Metro Manila

The levels of acceptance and urgency of the COVID-19 vaccine were formulated based on two sections of the questionnaire: vaccine acceptance and vaccine urgency. Both were assessed using a four-point Likert scale. However, two questions were presented as multiple choice in the sections of sources of information and preference of vaccine based on the

mechanism of action. In the questionnaire, one question from each section was deployed as multiple choice. The levels of acceptance and urgency were obtained using the calculated mean and standard deviation. Results revealed that the level of acceptance among the respondents was highly accepting, and their level of urgency was very urgent.

5.3 Differences in the Level of Acceptance and Urgency in COVID-19 Vaccination Based on the Age Group

The highest level of acceptance and urgency in COVID-19 vaccination based on the age group was determined through a four-point Likert scale containing 20 questions — 10 questions for the levels of acceptance and 10 questions for vaccine urgency. The highest level of acceptance and urgency was determined by obtaining the mean and standard deviation of the responses. Moreover, the p-value determined the significant differences between the four age groups, which answered hypothesis 1: There was a significant difference in the level of acceptance and urgency of COVID-19 vaccination among the age groups of the respondents.

Overall, the results showed that the age group with the highest level of acceptance were those aged 18-24 years old. It was also shown that all age groups were highly accepting of the COVID-19 vaccine, but there was still a notable significant difference in the level of acceptance of the respondents. For urgency, the results showed that the age group of 53-59-year-olds had the highest level of urgency. While some of the age groups had a higher level of urgency than the others, no significant difference was found among the levels of the urgency of the respondents.

5.4 Differences in the Level of Acceptance and Urgency in COVID-19 Vaccination Based on the Sex

The highest level of acceptance and urgency in COVID-19 vaccination based on sex was determined through a four-point Likert scale containing 20 questions — 10 questions for the levels of acceptance and 10 questions for vaccine urgency. The highest level of acceptance and urgency was determined by obtaining the mean and standard deviation of the responses. Moreover, the p-value determined the significant differences between the males and females, which confirmed "Hypothesis 2: There was a significant difference in the level of acceptance and urgency of COVID-19 vaccination between male and female adults with comorbidities".

However, the overall results perceived there was no significant difference between males and females in their levels of acceptance and urgency of the COVID-19 vaccine. Thus, the hypothesis that was made beforehand was rejected.

5.5 Differences in the of Acceptance and Urgency in COVID-19 Vaccination Based on the District in Metro Manila

The level of acceptance and urgency in COVID-19 vaccination based on the districts in Metro Manila was modified by the results acquired from the two sections of the questionnaire: the level of acceptance and the level of urgency that both consisted of ten questions. The p-values specified the interpretation based on their significance, while their mean values specified the level of acceptance and urgency.

The acquired results showed that the respondents have a high level of acceptance and a moderate to high level of urgency in COVID-19 vaccination, regardless of their location.

However, there was no significant difference in the levels of acceptance and urgency in COVID-19 vaccination based on the districts in Metro Manila.

5.6 The Preferred Vaccine Type of the Respondents Based on the Mechanism of Action of the Vaccines

The preferred vaccine types of the respondents based on the mechanism of action of the vaccines were discerned using a multiple-choice question "Which among the types of vaccines do you prefer based on their mechanisms of action? with Inactivated virus, Viral subunit, Viral vector, and RNA-based vaccine as choices. The results were evaluated by getting the frequency and percentage of the responses and obtaining their ranking. With this, it was identified that 57.6% of the respondents deemed RNA-based vaccines as their most preferred vaccine type (n=80; N=139). This was followed by the Viral vector vaccine, which was preferred by 18% of the respondents (n=25; N=139), and Inactivated virus, respectively, which gathered 15.1% of the responses (n=21; N=139). The least preferred vaccine type was the Viral subunit which received 9.4% of the responses (n=13; N=139).

5.7 The Impact of the Mechanism of Action of Readily Available COVID-19 Vaccines on the Level of Vaccine Acceptance of Adults with Comorbidities

The impact of the mechanism of action of readily available COVID-19 vaccines on the level of vaccine acceptance of adults with comorbidities was determined using a four-point Likert scale ranging from strongly agree to strongly disagree. This section contains 3 question

statements evaluated by the mean and standard deviation of the respondent's answers. Furthermore, assessing the responses gathered if this section has a strong or no impact was based on the table of range for mean.

Based on the results, it was revealed that there was a strong impact of the mechanism of action of readily available COVID-19 vaccines on the level of vaccine acceptance of adults with comorbidities because collated responses from questions 1 to 3 of the respondents were in between the values of mean 3.25 - 4.00 which equates to strongly agree in the table.

5.8 The effect of the respondents' knowledge, sources of information, attitude, and practice of health protocols, on the levels of acceptance and urgency of COVID-19 vaccination among adults with comorbidities in Metro Manila

Statistical Treatment.

Partial Least Squares - Structural Equation Analysis (PLS-SEM) was conducted to analyze the hypotheses. This analysis has two phases; the first is the evaluation of the measurement model or instrument using Confirmatory Factor Analysis, and the second is the Structural Equation Analysis. According to Hair *et al.* (2010), the measurement model's construct reliability, convergent validity, and discriminant validity can be assessed using Confirmatory Factor Analysis.

Evaluation of Measurement Model

Construct reliability determines the reliability and internal consistency of the instrument. The values of the Cronbach's alpha (CA) and composite reliability (CR) must be at least 0.7 to indicate good reliability and internal consistency (Nunnally, 1978; Fornell & Larcker, 1981; Nunnally & Bernstein, 1994). Results showed that all of the sections of the questionnaire satisfied the criterion for reliability and consistency, as seen in Table 4.8 A.

Convergent validity means that the participants comprehend the items or questions in each section of the survey tool in the same way that the researchers intended (Kock, 2017). Convergent validity can be attained when the item loadings are at least 0.5, and the p-values are less than 0.05. (Hair, Anderson, & Tatham, 1987; Hair, Black, Babin, & Anderson, 2009; Kock, 2017). Results revealed that the research instrument has convergent validity as seen in Table 4.8 A.

The average variance extracted (AVE) determines the amount of variance in each construct from its items in relation to measurement error (Chin, 1998; Amora et al., 2016). Hair, Ringle, and Sarstedt (2011) state that if the average variance extracted (AVEs) is more than 0.50, the construct has adequate validity. Results revealed that the research instrument has acceptable validity, as seen in Table 4.8 A.

Discriminant Validity

Discriminant validity assesses if the statements associated with each latent variable were not confusing when respondents answered the questionnaire given to them. Based on the findings revealed in Table 4.8 B, the values at the main diagonal acquired from each latent variable were

greater than the off-diagonal variables. Therefore, the measures utilized in the study have discriminant validity.

Evaluation of Structural Model and Hypothesis

Based on Table 4.8 C, the primary evaluation criteria for the structural model is the level of significance of the average path coefficients (p-value of APC) and the level of significance of the average R- squared (p-value of ARS). The developing model has an excellent fit since the average path coefficient (APC = 0.217, p = .002) and average R-squared (ARS = 0.572, p < .001) were both better than the acceptable range (p < .05).

Emerging Model

Based on the findings of the study, as depicted in Figure 4.8, the variables that significantly affect the levels of acceptance and urgency of adults with comorbidities in Metro Manila include knowledge and attitude. Meanwhile, the sources of information had a significant effect only on the level of urgency. In contrast, the only variable that did not significantly affect both levels of acceptance and urgency of the respondents was the practice of health protocols.

Path Analysis and Hypotheses

The effect of the respondents' knowledge, sources of information, attitude, and practice of health protocols on the levels of acceptance and urgency was evaluated by obtaining the

values of path coefficient and p-value. If the path coefficient had a positive value and the p-value was less than 0.05, the variable was deemed significant. Hence, it has a positive effect on the level of acceptance and urgency.

5.8.1. *Effect of Knowledge on the Level of Acceptance*

Based on the results, the knowledge of the respondents has a positive significant effect on the level of acceptance since the β coefficient was positive and the p-value was less than 0.05 (β = 0.596, f^2 = .443, p = <0.001). This demonstrated that vaccine acceptance has a direct causal link with knowledge. It has a significant impact, as indicated by the f2 value of above 0.15. (Cohen, 1988). As a result, hypothesis 3 was confirmed: knowledge has a favorable impact on the degree of COVID-19 vaccine acceptability among individuals with comorbidities.

5.8.2. *Effect of Attitude on Level of Acceptance*

The results showed that Attitude among adults with comorbidities had a positive significant effect on the level of vaccine acceptance of COVID-19 vaccination (β = 0.201, f2 = 0.098, and p = 0.007), as revealed by the positive value of β coefficient and the p-value of less than 0.05. This suggested that Attitude had a causal relation with vaccine acceptance, despite having a small influence, as evidenced by the f2 value of less than 0.15 (Cohen, 1988). As a result, hypothesis 6: Attitude positively influenced the level of vaccine acceptance of COVID-19 vaccination among adults with comorbidities was accepted.

5.8.3. *Effect of Sources of Information and Practice of Health Protocols on Level of Acceptance*

The gathered results have shown that sources of information and practice of health protocols on the level of acceptance do not have a significant effect as shown by the p-value of greater than 0.05. This suggested that sources of information and practices of health protocols do not affect the respondent's level of acceptance leading to the rejection of hypotheses 5 and 7: Sources of Information and Practice of Health Protocols positively influence the level of vaccine acceptance of COVID-19 vaccination among adults with comorbidities.

5.8.4. *Effect of Knowledge on Vaccine Urgency*

The results showed that knowledge has a positive significant effect on the perceived vaccine urgency of the respondents, as indicated by the β coefficient, $f^{2,}$ and p-value in Table 4.8 D. This indicated that as the knowledge of the respondents increases, their level of urgency increases as well.

5.8.5. *Effect of Sources of Information and Attitude on Vaccine Urgency*

Based on the results obtained from the Structural Emerging Model, the sources of information and attitude positively affected the attitude of vaccine urgency since the β coefficient was positive. This indicated that the sources of information and attitude have an effect on the vaccine urgency of people with comorbidities in Metro Manila.

5.8.6. *Effect of Practice on Health Protocols on Vaccine Urgency*

The results have shown that the practice of health protocols negatively affected the vaccine urgency of people with comorbidities in Metro Manila which indicated that it does not affect the respondents' urgency toward COVID-19 vaccines.

5.9 The Factor that Contributes the Most to the Level of Acceptance and Urgency of COVID-19 Vaccination Among Adults with Comorbidities

Hypothesis 4, which stated that knowledge positively influenced the level of vaccine acceptance of COVID-19 vaccination among adults with comorbidities, was perceived as the highest factor that contributed the most to the level of acceptance of COVID-19 vaccination among adults with comorbidities in Metro Manila which had a large effect size. This was obtained through the use of effect size that was computed through the structural emerging model. Knowledge was followed by hypothesis 6, which stated that attitude positively influenced the level of vaccine acceptance of COVID-19 vaccination among adults with comorbidities, and hypothesis 5, which stated that sources of information positively influenced the level of vaccine acceptance of COVID-19 vaccination among adults with comorbidities. The only hypothesis that was deemed to be not applicable was hypothesis 7 since it obtained a value of less than 0.02. Hence, the practice of health protocols did not affect the level of acceptance of respondents.

For vaccine urgency, this was also indicated by the effect sizes acquired from the results. The result revealed that hypothesis 9, which stated that knowledge positively influenced the

urgency of COVID-19 vaccination among adults with comorbidities, obtained the largest value. Hence, knowledge was the factor that contributed the most to the urgency of COVID-19 vaccination among adults with comorbidities who reside within Metro Manila. It was then followed by the factors that had a small effect on the urgency of COVID-19 vaccination among adults with comorbidities who resided within Metro Manila. These were the sources of information (hypothesis 10) and attitude (hypothesis 11). The practice of health protocols was deemed to be Not applicable since the effect size is 0.02, which is required for a variable to be a small size. This indicates that the practice of health protocols did not affect the level of urgency of respondents.

Conclusion

Taking into account the findings of this study, the following conclusions are presented:

a) There was a significant difference in the level of acceptance and urgency of COVID-19 vaccination among the age groups of the respondents.
b) There was no significant difference in the level of acceptance and urgency of COVID-19 vaccination between male and female adults with comorbidities.
c) There was no significant difference in the level of acceptance of COVID-19 vaccination amongst the four districts in Metro Manila.
d) Knowledge positively influenced the level of vaccine acceptance of COVID-19 vaccination among adults with comorbidities.
e) Source of Information negatively influenced the level of vaccine acceptance of COVID-19 vaccination among adults with comorbidities.

f) Attitude positively influenced the level of vaccine acceptance of COVID-19 vaccination among adults with comorbidities.

g) Practice of Health Protocols negatively influenced the level of vaccine acceptance of COVID-19 vaccination among adults with comorbidities.

h) Preference of COVID-19 vaccine based on mechanism of action strongly impacted the level of vaccine acceptance of COVID-19 vaccination among adults with comorbidities.

i) Knowledge positively influenced the urgency of COVID-19 vaccination among adults with comorbidities.

j) Sources of Information positively influenced the urgency of COVID-19 vaccination among adults with comorbidities.

k) Attitude positively influenced the urgency of COVID-19 vaccination among adults with comorbidities.

l) Practice of Health Protocols negatively influenced the urgency of COVID-19 vaccination among adults with comorbidities.

Recommendations

The following are recommendations for future researchers:

- The research conducted limited its population to people with comorbidities who were aged 18-59 years old. Future researchers of this topic may take on the action of including senior citizens and people without comorbidities or those people who belong to other COVID-19 vaccine categories released by the Department of Health to maximize the scope of their study.

- The research only focused on gathering data from individuals with comorbidity in Metro Manila. Future researchers of this topic can expand on gathering information from comorbid individuals not only limited to Metro Manila but also collect data from other places in the Philippines to get more responses and information among comorbid adults.
- The study was conducted during the surge of COVID-19 cases. Thus, data collection from respondents and communication with relevant government agencies and organizations were only conducted online and the researchers were only given a limited timeframe to conduct the study. The researchers recommend conducting a face-to-face encounter with these individuals and agencies to ensure faster collection of data.

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APPENDICES

APPENDIX A. Timeline

Activities	August 2021	September 2021	November 2021	December 2021	January 2022	February 2022	March 2022	April 2022	May 2022
Conceptualization									
Background of the Study									
Review of Related Literature									
Research Methodology									
Writing of Thesis Proposal									
Submission of Thesis Proposal to the readers									
Submission of Thesis Proposal to the REC									
Resubmission of Thesis Proposal to the REC									
Pilot Testing of the Survey Tool									
Collection of Data									
Encoding of Data									
Analysis and Interpretation of Data									
Writing of Final Thesis Paper									
Submission of Final Thesis and Defense									

APPENDIX B. Budget Proposal

Item	Quantity	Item Value	Total
A. Equipment			
Data/Wifi Usage Charges	5	Php 2,000	Php 10,000
Laptop/Desktop	5	Owned	-
Printer	5	Owned	-
B. Materials and Supplies			
Black Ink	2	Php 500	Php 1,000
Hard Copy: Ream of short bond paper	1	Php 209	Php 209
Binder	1	Php 186	Php 186
C. Services			
Statistician services	1	Php 5,500	Php 5,500
RCSSED additional payment	1	Php 1,860	Php 1,860
Research Ethics Committee (REC) Review Payment	1	Php 2,510	Php 2,510
D. Others Miscellaneous Fees			
Lalamove	1	Php 86	Php 86
Grab	1	Php 132	Php 132
Donation to Strays Worth Saving (SWS)	1	Php 1,000	Php 1,000
Donation to Streets to Schools (STS) Manila	1	Php 500	Php 500
Subtotal		**Php 14,483**	**Php 22,983**

The table above lists the specifications of the budget proposal of the study. It was divided into four parts: equipment, materials and supplies, services, and other miscellaneous fees. The researchers needed the data/wifi usage since the study will be conducted online through surveys distributed via google forms. The researchers already own the laptop, desktop, and other gadgets used. The researchers needed a ream of short bond paper, black inks, and a binder as the researchers will print their final publication independently. The consulted statistician in RCSSED was also paid for their services as well as the Research Ethics Committee. The fees for other miscellaneous expenses such as shipping costs and donations to selected organizations like Strays Worth Saving (SWS) and Streets to Schools (STS) Manila were also listed in the table. The total cost for this study amounts to Php 22,983.

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APPENDIX C. Informed Consent Form

Warmest greetings in the name of St. Thomas Aquinas!

We are third-year Medical Technology students from the Faculty of Pharmacy at the University of Santo Tomas, Manila. We are kindly requesting your participation in our research study entitled "The Levels of Acceptance and Urgency of COVID-19 Vaccine Among Adults with Comorbidities in Metro Manila." Our country is currently experiencing a crisis brought about by the COVID-19 pandemic. Given the severity of the situation, the findings of this study aim to establish an understanding of the factors that affect the levels of acceptance and urgency of the COVID-19 vaccine among one of the groups who are most susceptible to the virus, individuals with comorbidities. The respondents to be selected for the study are adults aged 18 to 59 years old who have at least one medical condition/disease. The target of this study is to gather at least 385 respondents.

The survey questionnaire will be utilized through Google Forms. The survey form will be divided into three (3) sections: Demographics, wherein the researchers will be asking for your personal information (e.g., name, age, contact number, location); Vaccine acceptance which will assess the participant's acceptance level in COVID-19 vaccines. Under this section are the Knowledge, Sources of Information, Attitude, Practices, and Preference of Vaccine Based on the Mechanism of Action; and lastly, the Vaccine urgency that will assess your urgency level with regards to COVID-19 vaccines.

You will be asked to upload any proof of your medical conditions or diseases such as the physician's medical certificate, medicine prescription, hospital records (surgical records,

discharge summary, pathology reports, medical abstract), vaccination cards (showing that the respondents are under A3 Category) or any other documentation that confirms eligibility for vaccination priority group A3. The study researchers, auditors, the FOPREC Ethics Review Panel, and regulatory authorities will have direct access to your medical data in terms of your given information ONLY to verify data. This survey will take approximately fifteen to twenty (15-20) minutes of your time. Rest assured that all information disclosed in the survey questionnaire will be kept private and confidential, to the extent permitted by the law. All respondents' information that will be gathered by the researchers will be kept in a private Google drive. The only people that can access the gathered information are the researchers and the statistician. You also have the right to access your records at any time by reaching out to the researchers. Their contact information is found in the last part of this consent form. Furthermore, the collected information will only be kept for a maximum of 3 years. After which, the Google drive will be reformatted. All data and data collecting technologies utilized and gathered throughout the study will be erased entirely and irrevocably. The study findings may be published in scientific journals, debated in professional forums, and credited by other researchers. However, no information about the respondents will be made public in a way that may be used to identify them.

Participation in this study is completely voluntary. Should you wish to keep your name anonymous, you may do so by skipping the "Name" portion of our survey. You may also cover your name in the medical prescriptions, medical certificates, hospital records, and vaccination cards. You are also not obligated to pay or send any amount of money for this study because it does not involve monetary costs. Furthermore, you have the right to object to or withdraw permission to process if the submitted information changes or is amended.

If any information that may affect your willingness to continue participating in this study becomes available, the researchers will immediately inform you or your legally acceptable representative. The researchers will reach out to you using the information you will provide in this form.

Your response will be highly appreciated, as it will significantly enhance the study and assist the researchers in obtaining findings that may eliminate the barriers that stymie the well-intentioned attempts of various public health initiatives towards the containment of the COVID-19 pandemic. Moreover, this can also be useful for conducting future research related to this topic. Rest assured that all responses and data collected will remain confidential and will only be used for the purpose of this research.

By signing this consent form, I agree that:

1. I am voluntarily participating in this quantitative study.
2. I have completely understood the purpose, information, and guidelines of this research.
3. I am willing to upload my medical certificate, maintenance prescription, medical records, vaccination cards, or any other documentation that confirms eligibility for vaccination priority group A3 as proof of my comorbidity.
4. I am fully giving my consent for the researchers to use my answers for fulfilling the objective of their study.
5. I am aware that this thesis does not involve any monetary costs nor does it involve any type of benefit or risk.
6. I have been given great assurance by the researchers that any personal information that I will input shall remain confidential accordingly to Data Privacy Policy 2012.

7. If any of these are violated, I understand that I am able to fully withdraw my consent and participation from the study at any time with no need for an explanation during and after the data gathering. I understand that in this case my answers or any information I shared in this study will be removed and not be included in the results of the study.

If you have any further concerns, please feel free to contact anyone from our group and we'll be more than happy to accommodate you.

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Name and Signature of Participant	Date of Participation

UNIVERSITY OF SANTO TOMAS

Faculty of Pharmacy – Department of Medical Technology
España Blvd., Sampaloc, Manila, Philippines

Filipino version

Mainit na pagbati sa pangalan ni Santo Tomas Aquinas!

Kami ay mga mag-aaral sa ikatlong taon ng Medical Technology mula sa Faculty of Pharmacy sa Unibersidad ng Santo Tomas, Manila. Hinihiling namin ang iyong partisipasyon sa aming pananaliksik na pinamagatang "Ang Mga Antas ng Pagtanggap at Pangangailangan ng Agarang Pagpapabakuna laban sa COVID-19 ng mga Mamamayan na may Komorbididad sa Metro Manila." Ang ating bansa ay kasalukuyang nakararanas ng krisis na dulot ng pandemyang COVID-19. Dahil sa kalubhaan ng sitwasyon, ang mga matutuklasan ng pag-aaral na ito ay naglalayong magtatag ng pag-unawa sa mga salik na nakaaapekto sa mga antas ng pagtanggap at pangangailangan ng agarang pagpapabakuna laban sa COVID-19 sa isa sa mga grupo na pinaka madaling kapitan ng virus na ito, ang mga indibidwal na mayroong komorbididad. Ang mga kalahok para sa pag-aaral na ito ay nasa hustong gulang na may edad 18 hanggang 59 na may hindi bababa sa isa o higit pang kondisyong medikal o karamdaman. Ang layunin ng pag-aaral na ito ay makatipon ng hindi bababa sa 385 na respondente.

Ang talatanungan ay magagamit sa pamamagitan ng Google Forms. Ito ay nahahati sa tatlong (3) seksiyon: Demograpiko, kung saan ang iyong personal na impormasyon (hal., pangalan, edad, "contact number", lokasyon) ay hihingin ng mga mananaliksik; Pagtanggap ng bakuna na magtataya sa antas ng pagtanggap ng kalahok sa mga bakuna laban sa COVID-19. Sa ilalim ng seksyong ito ay napaloloob ang Kaalaman, Mga Pinagmulan ng Impormasyon, Saloobin, Mga Kasanayan, at Kagustuhang Bakuna Batay sa Mekanismong Pangsiyentipiko; at

ang panghuling seksyon ay ang Pangangailangan ng Agarang Pagpapabakuna na magtataya ng iyong antas ng pagka-apurahan tungkol sa mga bakuna laban sa COVID-19.

Hihilingin ng mga mananaliksik na ikaw ay mag-upload ng kahit anong pruweba katulad ng sertipikong medikal, reseta ng medikal, mga rekord ng medikal (mga rekord ng operasyon, buod ng paglabas ng ospital, mga ulat ng patolohiya, abstract ng medikal), mga kard ng iyong bakuna (nagpapakita na ikaw ay nasa ilalim ng Kategoryang A3) o anumang iba pang dokumentasyon na nagkukumpirma ng pagiging kabilang sa "priority group" na A3 sa simula ng talatanungan bilang patunay ng iyong mga kondisyong medikal o karamdaman. Sa pag-aaral na ito, ang mga mananaliksik, taga-pagsuri, ang FOPREC Ethics Review Panel, at ang mga taga awtoridad sa regulasyon ay magkakaroon ng kakayahan na mabuksan ang iyong medikal na datos sa mga tuntunin ng iyong ibinigay na impormasyon LAMANG para sa layunin ng pagpapatunay sa mga datos. Hihiramin lamang namin ang labinlima hanggang dalawampung (15-20) minuto ng iyong oras para sa survey na ito. Makatitiyak na ang lahat ng impormasyong inyong ibibigay sa talatanungan ay mananatiling pribado at kumpidensyal, sa lawak ng pinahihintulutan ng batas. Lahat ng iyong impormasyon na nalikom ng mga mananaliksik ay itatago sa isang pribadong Google drive. Ang mga natatanging indibidwal na mayroong access sa nakalap na impormasyon ay ang mga mananaliksik at ang "statistician". Ikaw ay mayroon ding karapatan na makita ang iyong mga talaan anumang oras sa pamamagitan ng pakikipag-ugnayan sa mga mananaliksik. Ang kanilang impormasyon sa pakikipag-ugnayan ay matatagpuan sa huling parte ng "consent form" na ito. Higit pa rito, ang mga nakolektang impormasyon ay itatago lamang sa hindi tataas sa tatlong (3) taon. Pagkatapos ng tatlong (3) taon, buburahin na ang Google drive. Ang lahat ng datos at mga teknolohiya sa pagkolekta ng datos na ginamit at nakalap sa buong pag-aaral ay mababura nang buo at hindi na mababawi.

Ang mga natuklasan sa pag-aaral ay maaaring mailathala sa mga siyentipikong journal, matalakay sa mga propesyonal na forum, at magawan ng kredito ng iba pang mga mananaliksik. Gayunpaman, walang impormasyon ukol sa mga sumagot sa survey na ito ang isasapubliko sa paraang maaaring magamit upang makilala sila.

Ang paglahok sa pag-aaral na ito ay ganap na boluntaryo. Kung nais mong hindi ipakilala ang iyong pangalan, maaari mong gawin ito sa pamamagitan ng paglaktaw sa bahaging "Pangalan" ng aming survey. Maaari mo ring takpan ang iyong pangalan sa mga reseta ng medikal, mga sertipikong medikal, mga rekord ng ospital, at mga kard ng pagbabakuna. Ikaw ay hindi rin obligadong magbayad o magpadala ng anumang halaga ng pera para sa pag-aaral na ito dahil hindi ito nagsasangkot sa mga gastos sa pananalapi. Higit pa rito, may karapatan kang tumutol o bawiin ang iyong permiso sa pag proseso kung ang iyong isinumiteng impormasyon ay nabago ng walang pahintulot.

Kaagad na ipaaalam ng mga mananaliksik sa iyo o sa iyong legal na katanggap-tanggap na kinatawan kung mayroong impormasyon na maaaring may kaugnayan sa iyong pagbibigay ng permiso na magpatuloy sa paglahok sa pag-aaral na ito. Makikipag-ugnayan sa iyo ang mga mananaliksik sa pamamagitan ng mga impormasyong iyong ibinahagi sa "consent form" na ito.

Ang iyong tugon ay lubos na pahahalagahan, dahil ito ay magpapahusay sa pag-aaral at makatutulong sa mga mananaliksik sa pag-abot ng isang konklusyon. Bukod dito, maaari rin itong maging kapaki-pakinabang para sa hinaharap na pananaliksik na may kaugnayan sa paksang ito.

Sa pamamagitan ng pagpirma sa "consent form" na ito, sumasang-ayon ako na:

1. *Ako ay boluntaryong lalahok sa "quantitative" na pag-aaral na ito*.

2. *Nauunawaan ko nang lubusan ang layunin, impormasyon, at mga alituntunin ng pananaliksik na ito.*
3. *Handa akong "i-upload" ang aking medikal na sertipiko, reseta, talaang medikal, kard ng bakuna, o kahit anong dokumento na nagpapakita na ako ay kabilang sa kategoryang A3 sa "vaccine prioritization" bilang patunay ng aking mga kondisyong medikal o karamdaman.*
4. *Buo kong ibinibigay ang aking pahintulot sa mga mananaliksik na gamitin ang aking mga kasagutan para sa pagtupad sa layunin ng kanilang pag-aaral.*
5. *Alam ko na ang pag-aaral na ito ay hindi nangangailangan ng anumang gastusing pananalapi at hindi rin ito nauugnay sa anumang uri ng benepisyo o panganib.*
6. *Ako ay nabigyan ng malaking katiyakan ng mga mananaliksik na ang anumang personal na impormasyon na aking ilalagay ay mananatiling pribado o kumpidensyal nang naaayon sa Data Privacy Policy 2012.*
7. *Kung alinman sa mga ito ang nalabag, naiintindihan ko na maaari kong bawiin ang aking pahintulot at pakikilahok sa pag-aaral anumang oras ng walang kinakailangang paliwanag habang ginagawa ang pananaliksik hanggang sa pagkatapos ng pangangalap ng datos. Naiintindihan ko na sa kasong ito, ang aking mga sagot at anumang impormasyon na aking ibinahagi para sa pananaliksik na ito ay aalisin at hindi isasama sa mga resulta ng pag-aaral na ito.*

Kung mayroon kang anumang karagdagang alalahanin, mangyaring huwag mag-atubiling makipag-ugnayan sa sinuman mula sa aming grupo at higit naming ikalulugod ang pagsasagot sa iyong mga katanungan.

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Contact number: 09157454038

Assoc. Prof. Ma. Frieda Z. Hapan, PhD

Role: *Thesis Advisor*

_____ _____

Name and Signature of Participant Date of Participation

APPENDIX D. Survey Tool

QUESTIONNAIRE

THE LEVELS OF ACCEPTANCE AND URGENCY OF COVID-19 VACCINE AMONG ADULTS WITH COMORBIDITIES IN METRO MANILA

I. DEMOGRAPHICS		
Name (Optional):		**Sex:** □ Male □ Female
Age: □ 18-24 years old □ 25-31 years old □ 32-38 years old □ 39-45 years old □ 46-52 years old □ 53-59 years old		**Types of Comorbidities (Select all that apply):** □ Hypertension □ Cardiovascular conditions □ Cerebrovascular conditions □ Diabetes □ HIV □ Hepatitis B □ Malignancy □ Respiratory illnesses □ Immunodeficiencies □ Others: _____
Location (Districts in NCR): □ District 1- Capital District (Manila) □ District 2- Eastern Manila District (Mandaluyong, Marikina, Pasig, Quezon City, and San Juan) □ District 3- Northern Manila District (Camanava) (Caloocan, Malabon, Navotas, and Valenzuela) □ District 4- Southern Manila District (Las Piñas, Makati, Muntinlupa, Parañaque, Pasay, Pateros, and Taguig)		
E-mail Address:	**Vaccinated or Not Vaccinated:** □ Vaccinated □ Not Vaccinated	**Have you received a COVID-19 vaccine booster shot?** □ Yes □ No

II. VACCINE ACCEPTANCE

DIRECTIONS: This section will assess your COVID-19 vaccine acceptance. Answer the following questions based on your perception of the COVID-19 vaccine.

Adapted with permission from:
Walker, A. N., Zhang, T., Peng, X. Q., Ge, J. J., Gu, H., & You, H. (2021). Vaccine acceptance and its influencing factors: An online Cross-Sectional study among international college students studying in china. *Vaccines,* 9(6), 585. https://doi.org/10.3390/vaccines9060585

STATEMENTS	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
1. I would like to receive the COVID-19 vaccine right away.				
2. I still have some concerns, so I do not want to receive the COVID-19 vaccine right away.				
3. I am still having second thoughts about the COVID-19 vaccine.				

4. I am willing to receive the COVID-19 vaccine no matter what.				

Rate your level of acceptance towards COVID-19 vaccination

- ☐ 4 - Highly Accepting
- ☐ 3 - Accepting
- ☐ 2 - Unaccepting
- ☐ 1 - Highly Unaccepting

II. 2. 1. Knowledge

DIRECTIONS: This section will assess the extent of your knowledge about COVID-19 and COVID-19 vaccines. Answer the following questions based on your knowledge of the given topic.

Adapted with permission from:

Walker, A. N., Zhang, T., Peng, X. Q., Ge, J. J., Gu, H., & You, H. (2021). Vaccine acceptance and its influencing factors: An online Cross-Sectional study among international college students studying in china. *Vaccines,* 9(6), 585. https://doi.org/10.3390/vaccines9060585

STATEMENTS	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
1. Vaccination is highly recommended to high-risk individuals (individuals more vulnerable to the infection).				
2. Vaccination protects the people around you.				
3. Individuals with (a supposed) strong immune system need vaccination against diseases.				
4. Natural protection from being infected with the disease is better than protection from vaccination.				
5. Vaccination makes people sterile (unable to produce children).				
6. Vaccine-preventable diseases are not very dangerous; hence, there is no need to be vaccinated.				
7. You are aware of the main side effects of the COVID-19 vaccine.				
8. A person previously infected with COVID-19 should still be vaccinated.				
9. COVID-19 vaccination can protect against COVID-19 infection.				

II. 2.2. Sources of Information

DIRECTIONS: This section will determine the sources of your information regarding COVID-19 and COVID-19 vaccination. Put a check on the box that corresponds to your answer. Kindly answer the questions honestly.

Adapted with permission from:
Muqattash, R., Niankara, I., & Traoret, R. I. (2020). Survey data for COVID-19 vaccine preference analysis in the United Arab Emirates. *Data in brief*, 33, 106446. https://doi.org/10.1016/j.dib.2020.106446

1. What is the most common information source you turn to, for information on COVID-19? (click all that apply)	☐ Government website ☐ News blogs ☐ News papers ☐ Radio ☐ Television ☐ The internet in general ☐ Others (please specify) :_____

STATEMENTS	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
2. I believe in all of the information in the sources indicated above.				
3. I believe that the information from the listed sources above influence my level of acceptance and level of urgency towards the COVID-19 vaccine.				
4. I believe that the information from the sources above affect my perception about the COVID-19.				

II. 2. 3. Attitude

DIRECTIONS: This section will assess your attitude towards COVID-19 vaccine. Put a check on the box that corresponds to your answer, (4) Strongly Agree, (3) Agree, (2) Disagree, (1) Strongly Disagree.

Adapted with permission from:
Danabal, K.G.M., Magesh, S.S., Saravanan, S., & Gopichandran, V. (2021). *Attitude towards COVID 19 vaccines and vaccine hesitancy in urban and rural communities in Tamil Nadu, India - community based survey.* BMC Health Services Research (2021) 21:994 https://doi.org/10.1186/s12913-021-07037-4.

STATEMENTS	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
Attitude towards safety about COVID-19 vaccines				
1. I can feel that my family is protected after getting vaccinated against COVID 19				
2. I believe that although most COVID 19 vaccines are safe, sometimes there may be problems.				

3. I worry about serious unknown long-term effects of the COVID-19 vaccine in the future.				
Attitude towards the efficacy of COVID-19 vaccines				
4. I believe that I can rely on vaccines to stop severe COVID 19 disease.				
5. I believe that natural immunity (acquired after being exposed to the disease and becoming infected with the virus itself) lasts longer than vaccination.				
6. I believe that natural exposure to germs and viruses gives the safest protection.				
Attitude towards alleged risks posed by COVID-19 vaccines				
7. I believe that COVID-19 vaccines make a lot of money for pharmaceutical companies (companies that distribute and sell drugs).				
8. I believe that authorities promote COVID-19 vaccine for political gain and financial gain, not for people's health.				
9. I believe that COVID-19 vaccination programs are a big con (way of tricking someone).				

II. 2.4. Practice of Health Protocols

DIRECTIONS: This section will assess your implementation of COVID-19 preventive measures. Put a check on the box that corresponds to your answer, (4) Strongly Agree, (3) Agree, (2) Disagree, (1) Strongly Disagree.

Adapted with permission from:
Abdelrahim, M.E.A. & Elgendy, M.O. (2021, July 2). *Public awareness about coronavirus vaccine, vaccine acceptance, and hesitancy.* Journal of Medical Virology. Wiley DOI: 10.1002/jmv.27199.

STATEMENTS	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
1. A person still needs to practice preventive measures such as wearing a face mask, washing hands, and social distancing after vaccination.				
2. I am still committed to the precautionary measures for protection from COVID-19 infection.				
3. It is essential to avoid touching your eyes, nose, and mouth with unwashed/unsanitized hands, especially during this pandemic.				
4. Social distancing is still necessary after being completely vaccinated, even if vaccines lower the risk of contracting COVID-19.				
5. I avoid or leave crowded places when I am outside of my residence.				

II. 2. 5. Preference of Vaccine Based on the Mechanism of Action

DIRECTIONS: This section will assess your vaccine preference based on the mechanism of action. Answer the following questions based on your knowledge of the given topic.

Mechanism of action - explains how the vaccine works inside the body and how it will help people in combating COVID-19	
Types of vaccines	**Mechanism of action**
Inactivated virus	The genetic material of the virus has been destroyed to remove the capacity of the virus to produce a disease.
Viral subunit	A chemical substance of the virus is used by the immune system to create white blood cells that protect the body from viral infection, without the virus present.
Viral vector	A virus that contains a specific trait of the coronavirus is used to create protection against COVID-19. Once the virus infects a cell, the blood cells protecting the body against diseases will recognize the COVID-19 like infection and will proceed to create protection against it.
RNA based vaccine	Pieces of DNA or RNA (single stranded DNA) are used to produce an immunity by invading healthy cells that will produce copies of the traits of the virus which can be recognized by the blood cells that protect the body against diseases.

1. Which among the types of vaccines do you prefer based on their mechanisms of action?
   - ☐ Inactivated virus
   - ☐ Viral subunit
   - ☐ Viral vector
   - ☐ RNA based vaccine

STATEMENTS	**Strongly Agree (4)**	**Agree (3)**	**Disagree (2)**	**Strongly Disagree (1)**
2. The mechanism of action of a vaccine is a significant factor in determining your acceptability of COVID-19 vaccines.				
3. The mechanism of action affects the efficacy of the vaccine.				
4. Knowing the mechanism of action will increase the level of acceptance of COVID-19 vaccine.				

III. VACCINE URGENCY

DIRECTIONS: This section will assess your level of vaccine urgency. Place a checkmark (✔) on the boxes that correlate with your answer.

Urgency - the sensation that something needs immediate attention and action must be done as quickly as feasible

Vaccine urgency - eagerness of people with comorbidities to get the vaccine

STATEMENTS	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
1. I will get vaccinated immediately because I am knowledgeable of the health benefits of being vaccinated.				
2. I will get vaccinated immediately because I am aware that it ensures that people are safe from COVID-19 infection.				
3. I will get vaccinated immediately because the information about the COVID-19 is trustworthy.				
4. I will get vaccinated immediately for immunization regardless of whether the vaccine has side effects or not.				
5. I will get vaccinated immediately because waiting for natural immunity poses risks to my health.				
6. I will get vaccinated immediately to minimize the need for washing hands or using alcohol.				
7. I will get vaccinated immediately so as not to be afraid of crowded places outside.				
8. I will get vaccinated immediately to prevent infection from COVID-19 variants.				
9. I will get vaccinated immediately to not get hassled in public places or transportation.				

Rate your level of urgency towards COVID-19 vaccination.

- ☐ 4 - Very urgent
- ☐ 3 - Urgent
- ☐ 2 - Somewhat urgent
- ☐ 1 - Not urgent

FILIPINO VERSION:

THE LEVELS OF ACCEPTANCE AND URGENCY OF COVID-19 VACCINE AMONG ADULTS WITH COMORBIDITIES IN METRO MANILA

<table>
<tr><th colspan="3">I. DEMOGRAPIKO</th></tr>
<tr><td colspan="2">Pangalan (Optional):</td><td>Kasarian: □ Lalaki □ Babae</td></tr>
<tr><td colspan="2">Edad:
□ 18-24 taong gulang
□ 25-31 taong gulang
□ 32-38 taong gulang
□ 39-45 taong gulang
□ 46-52 taong gulang
□ 53-59 taong gulang</td><td rowspan="2">Uri ng Comorbidity (Lagyan ng tsek ang lahat ng naaangkop):
□ Altapresyon
□ Mga sakit sa puso
□ Mga sakit sa utak
□ Diabetes
□ HIV
□ Hepatitis B
□ Kanser
□ Sakit sa baga
□ Immunodeficiencies
□ Iba pa: _____</td></tr>
<tr><td colspan="2">Lokasyon (Distrito sa NCR)
□ Unang Distrito- Capital District (Manila)
□ Ikalawang Distrito- Eastern Manila District (Mandaluyong, Marikina, Pasig, Quezon City, and San Juan)
□ Ikatlong Distrito- Northern Manila District (Camanava) (Caloocan, Malabon, Navotas, and Valenzuela)
□ Ikaapat na Distrito- Southern Manila District (Las Piñas, Makati, Muntinlupa, Parañaque, Pasay, Pateros, and Taguig)</td></tr>
<tr><td>E-mail Address:</td><td>Bakunado or Hindi Bakunado:
□ Bakunado
□ Hindi Bakunado</td><td>Nakatanggap ka na ba ng COVID-19 vaccine booster shot?
□ Oo
□ Hindi</td></tr>
</table>

II. **PAGTANGGAP NG BAKUNA**

PANUTO: Susuriin ng seksyong ito ang iyong pagtanggap ng bakuna laban sa COVID-19. Sagutin ang mga sumusunod na tanong batay sa iyong pananaw ukol sa bakuna laban sa COVID-19.

Iniangkop nang may permiso mula sa:

Walker, A. N., Zhang, T., Peng, X. Q., Ge, J. J., Gu, H., & You, H. (2021). Vaccine acceptance and its influencing factors: An online Cross-Sectional study among international college students studying in china. *Vaccines,* 9(6), 585. https://doi.org/10.3390/vaccines9060585

MGA PAHAYAG	Lubos na Sumasang Ayon (4)	Sumasang Ayon (3)	Hindi Sumasang Ayon (2)	Lubos na Hindi Sumasang Ayon (1)
1. Gusto kong makatanggap ng bakuna laban sa COVID-19 agad-agad.				
2. May mga katanungan pa ako kaya naman hindi ko pa gustong makatanggap ng bakuna laban sa COVID-19 agad-agad.				
3. Nagdadalawang isip pa rin ako na magpabakuna laban sa COVID-19.				
4. Magpapabakuna pa rin ako laban sa COVID-19 kahit na anong mangyari.				

I-*rate* ang iyong lebel ng pagtanggap ng bakuna laban sa COVID-19.
☐ 4 - Lubos na tinatanggap ☐ 3 - Tinatanggap ☐ 2 - Hindi tinatanggap ☐ 1 - Lubhang hindi tinatanggap

II. 2. 1. Kaalaman

PANUTO: Susuriin ng seksyong ito ang lawak ng iyong kaalaman ukol sa COVID-19 at sa mga bakuna kontra COVID-19. Sagutin ang mga sumusunod na tanong batay sa iyong kaalaman sa ibinigay na paksa.

Iniangkop nang may permiso mula sa:
Walker, A. N., Zhang, T., Peng, X. Q., Ge, J. J., Gu, H., & You, H. (2021). Vaccine acceptance and its influencing factors: An online Cross-Sectional study among international college students studying in china. *Vaccines,* 9(6), 585. https://doi.org/10.3390/vaccines9060585

MGA PAHAYAG	Lubos na Sumasang Ayon (4)	Sumasang Ayon (3)	Hindi Sumasang Ayon (2)	Lubos na Hindi Sumasang Ayon (1)
1. Ang pagbabakuna ba ay lubos na inirerekomenda sa mga indibidwal na madaling kapitan ng sakit/impeksyon.				
2. Maaaring maprotektahan ng pagpapabakuna ang mga tao sa paligid mo.				
3. Kailangan magpabakuna laban sa mga sakit ang mga indibidwal na may malakas na kalusugan.				
4. Mas mahusay ang natural na proteksyon mula sa pagkahawa ng sakit kaysa sa proteksyon mula sa pagbabakuna.				
5. Nagiging sanhi ng pagkabaog ang pagbabakuna.				
6. Sa palagay ko ay hindi masyadong mapanganib ang mga sakit na maiiwasan sa bakuna kung kaya ay hindi na kailangan magpabakuna.				
7. Alam ko ang pangunahing epekto ng bakuna sa COVID-19.				
8. Dapat pa na mabakunahan ang isang taong dati nang nahawaan ng COVID-19.				
9. Sa palagay ko ay mapoprotektahan ng bakuna laban sa COVID-19 ang mga tao laban sa impeksyon sa COVID-19.				

II.2.2. Mga Pangunahing Pinagkukunan ng Impormasyon

PANUTO: Susuriin ng seksyong ito ang mga pangunahing pinagkukunan ng impormasyon ukol sa COVID-19 at mga bakuna laban sa COVID-19. Lagyan ng tsek ang kahon na tumutukoy sa iyong sagot, (4) kung ikaw ay lubos

na sumasang ayon, (3) kung ikaw ay sumasang ayon, (2) kung ikaw ay hindi sumasang ayon, (1) kung ikaw ay lubos na hindi sumasang ayon. Maaari lamang po na pakisagutan ang mga tanong nang tapat.

Iniangkop nang may permiso mula sa:
Muqattash, R., Niankara, I., & Traoret, R. I. (2020). Survey data for COVID-19 vaccine preference analysis in the United Arab Emirates. *Data in brief*, 33, 106446. https://doi.org/10.1016/j.dib.2020.106446

1. Ano ang iyong pinakakaraniwang pinagkukunan ng impormasyon ukol sa COVID-19? (piliin ang lahat ng naaangkop)	☐ *Website* ng gobyerno ☐ Mga *blog* ng balita ☐ Dyaryo ☐ Radyo ☐ Telebisyon ☐ *Internet* (pangkalahatan) ☐ Iba pa (paki lagay sa patlang) :_____

MGA PAHAYAG	Lubos na Sumasang Ayon (4)	Sumasang Ayon (3)	Hindi Sumasang Ayon (2)	Lubos na Hindi Sumasang Ayon (1)
2. Naniniwala ako sa lahat ng impormasyon na nanggagaling sa mga pinagkukunan ko ng impormasyon na nakalista sa taas.				
3. Naniniwala ako na ang mga impormasyon galing sa mga nakalista sa taas ay naka-iimpluwensya ng aking lebel ng pagtanggap at antas ng pagkaapura sa bakuna laban sa COVID-19.				
4. Naniniwala ako na lahat ng impormasyong nakalap ko galing sa mga pangunahing pinagkukunan ko ng impormasyon na nakalista sa taas ay naka-aapekto sa aking pananaw ukol sa COVID-19.				

II. 2. 3. Mga Saloobin

PANUTO: Susuriin ng seksyong ito ang iyong mga saloobin ukol sa mga bakuna laban sa COVID-19. Lagyan ng tsek ang kahon na tumutukoy sa iyong sagot, (4) kung ikaw ay lubos na sumasang ayon, (3) kung ikaw ay sumasang ayon, (2) kung ikaw ay hindi sumasang ayon, (1) kung ikaw ay lubos na hindi sumasang ayon.

Iniangkop nang may permiso mula sa:
Danabal, K.G.M., Magesh, S.S., Saravanan, S., & Gopichandran, V. (2021). *Attitude towards COVID 19 vaccines and vaccine hesitancy in urban and rural communities in Tamil Nadu, India - community based survey.* BMC Health Services Research (2021) 21:994 https://doi.org/10.1186/s12913-021-07037-4.

MGA PAHAYAG	Lubos na Sumasang Ayon (4)	Sumasang Ayon (3)	Hindi Sumasang Ayon (2)	Lubos na Hindi Sumasang Ayon (1)
Mga saloobin patungkol sa kaligtasan sa bakuna laban sa COVID-19				

1. Pakiramdam ko ay ligtas ang aking pamilya pagkatapos mabakuhanan laban sa COVID-19.				
2. Naniniwala ako na kahit halos lahat ng bakuna laban sa COVID-19 ay ligtas, posible pa ring may maging problema.				
3. Nag-aalala ako sa maaaring malalang hindi pa natutuklasang pangmatagalang epekto ng bakuna laban sa COVID-19 sa ating hinaharap.				
Mga saloobin patungkol sa bisa ng bakuna laban sa COVID-19				
4. Naniniwala akong makadedepende ako sa bakuna para masugpo/matigil ang paglala ng COVID-19.				
5. Naniniwala ako na ang *natural immunity* o ang natural na nilikha ng katawan na proteksyon laban sa mikrobyo ay mas magtatagal kaysa sa bakuna.				
6. Naniniwala ako na ang *natural exposure* sa mga mikrobyo at viruses ay nagbibigay nang mas ligtas na proteksyon.				
Mga saloobin patungkol sa panganib na dala ng bakuna laban sa COVID-19				
7. Naniniwala ako na ang mga COVID-19 na bakuna ay nakapagbibigay ng malaking pera sa mga *pharmaceutical* na kumpanya (mga kumpanyang namamahagi at nagbebenta ng mga gamot).				
8. Naniniwala ako na ang mga awtoridad ay pinapalaganap ang mga bakuna laban sa COVID-19 para sa pampulitika at pinansiyal na makukuha, at hindi para sa kagalingan ng mga tao.				
9. Naniniwala ako na ang programa sa bakuna laban sa COVID-19 ay isang paraan ng panlilinlang lamang.				

II.2.4. Pagsasanay ng mga Protokol sa Kalusugan

PANUTO: Susuriin ng seksyong ito ang iyong mga kagawian upang maiwasan ang COVID-19. Sagutin ang mga sumusunod na tanong batay sa iyong kaalaman sa ibinigay na paksa.

Iniangkop nang may permiso mula sa:
Abdelrahim, M.E.A. & Elgendy, M.O. (2021, July 2). *Public awareness about coronavirus vaccine, vaccine acceptance, and hesitancy.* Journal of Medical Virology. Wiley DOI: 10.1002/jmv.27199.

MGA PAHAYAG	Lubos na Sumasang Ayon (4)	Sumasang Ayon (3)	Hindi Sumasang Ayon (2)	Lubos na Hindi Sumasang Ayon (1)
1. Kailangan pa ring magsagawa ng mga hakbang sa pag iwas sa COVID-19 tulad ng pagsusuot ng *face mask*, paghuhugas ng kamay, at *social distancing* pagkatapos magpabakuna.				

2. Nakatuon pa rin ako sa mga hakbang para sa proteksyon mula sa impeksyon sa COVID-19.				
3. Mahalagang iwasan ang paghawak sa ang iyong mga mata, ilong, at bibig gamit ang hindi nahugasan/hindi malinis na mga kamay, lalo na sa panahon ng pandemya.				
4. Kailangan pa rin ang *social distancing* pagkatapos mong ganap na mabakunahan kahit na binibigyan ka ng mga bakuna ng pribilehiyo na maiwasan ang pagkakaroon ng COVID-19.				
5. Umiiwas o umaalis pa rin ako sa matataong lugar kapag nasa labas ka ng iyong tirahan.				

II. 2. 5. Gustong Bakuna batay sa Mekanismo ng Pagkilos

PANUTO: Susuriin ng seksyong ito ang iyong kagustuhan na bakuna batay sa mga mekanismo ng pagkilos ng bakuna. Sagutin ang mga sumusunod na tanong batay sa iyong kaalaman sa ibinigay na paksa.

Mekanismo ng pagkilos - ipinapaliwanag kung paano gumagana ang bakuna sa loob ng katawan at kung paano ito makakatulong sa mga tao sa paglaban sa COVID-19

Mga Uri ng Bakuna	Mekanismo ng Pagkilos
Inactivated virus	Ang *genetic material* ng *virus* ay winasak upang alisin ang kapasidad ng virus na makagawa ng isang sakit.
Viral subunit	Ang kemikal na sangkap ng virus ay ginagamit ng *immune system* para lumikha ng mga *white blood cells* na nagpoprotekta sa katawan mula sa impeksyon ng virus, nang walang aktwal na virus.
Viral vector	Isang *virus* na mayroong partikular na katangian ng coronavirus ang ginagamit upang makalikha ng proteksyon laban sa COVID-19. Kapag nahawahan ng *virus* ang isang *cell*, makikilala ng mga *blood cells* na nagpoprotekta sa katawan laban sa mga sakit ang impeksyon na iyon bilang COVID-19 at magpapatuloy na lumikha ng proteksyon laban dito.
RNA based vaccine	Ang mga piraso ng DNA or RNA (*single stranded DNA)* ay ginagamit upang makabuo ng isang *immunity* sa pamamagitan ng pagsalakay sa mga malulusog na *cell* na gagawa ng mga kopya ng mga katangian ng *virus* na maaaring makilala ng mga *blood cells* na nagpoprotekta sa katawan laban sa mga sakit.

1. Alin sa mga uri ng bakuna ang pinakagusto mo batay sa kanilang mga mekanismo ng pagkilos?
   - ☐ Inactivated virus
   - ☐ Viral subunit
   - ☐ Viral vector
   - ☐ RNA based vaccine

MGA PAHAYAG	Lubos na Sumasang Ayon (4)	Sumasang Ayon (3)	Hindi Sumasang Ayon (2)	Lubos na Hindi Sumasang Ayon

				(1)
2. Ang mekanismo ng pagkilos ng isang bakuna ay isang mahalagang salik sa pagtukoy sa iyong antas ng pagtanggap sa mga bakuna laban sa COVID-19.				
3. Ang mekanismo ng pagkilos ng mga bakuna ay naka-aapekto sa bisa nito.				
4. Sa pamamagitan ng pag-alam sa mekanismo ng pagkilos ng mga bakuna ay tataas ang antas ng pagtanggap sa mga bakuna laban sa COVID-19.				

III. PANGANGAILANGAN NG AGARANG PAGPAPABAKUNA

PANUTO: Susuriin ng seksyong ito sa iyong antas ng pangangailangan ng agarang pagpapabakuna. Lagyan ng tsek (✔) ang mga kahon na nauugnay sa iyong sagot.

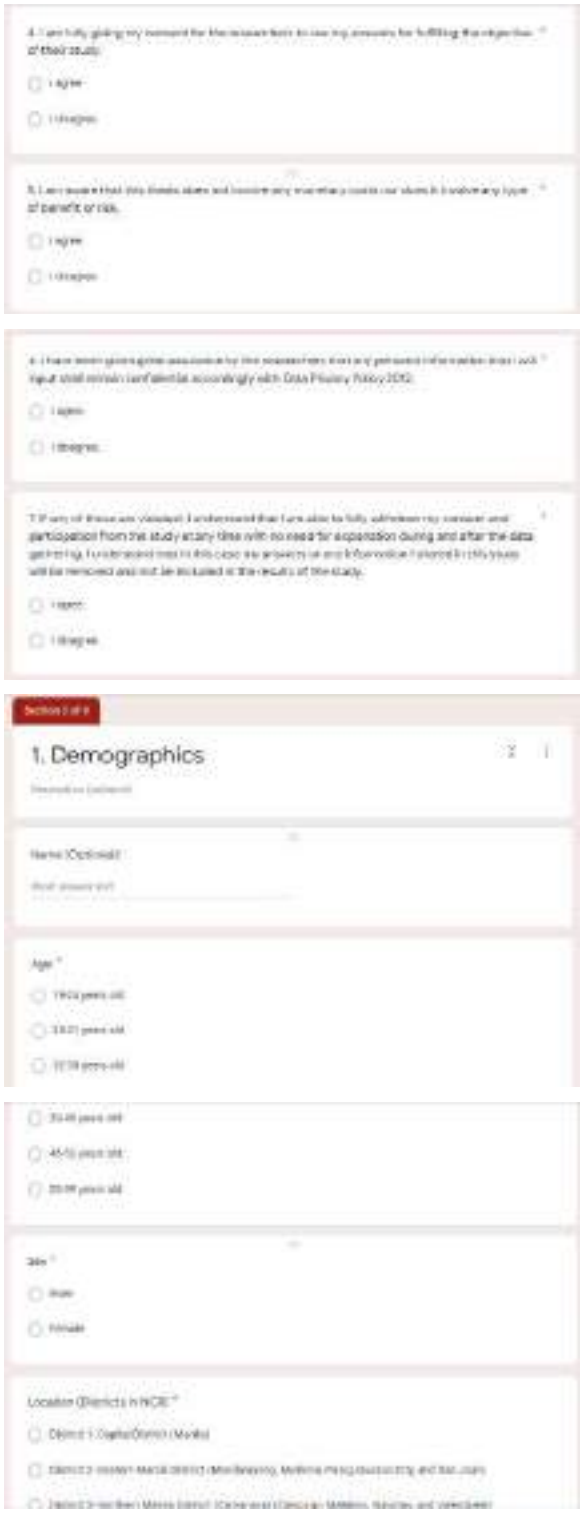
Agaran - ang pakiramdam na ang isang bagay ay nangangailangan ng mabilisang atensyon at aksyon ay dapat gawin sa lalong madaling panahon

Agarang pagpapabakuna - pagnanais ng mga taong may karamdaman na makakuha ng bakuna

MGA PAHAYAG	**Lubos na Sumasang Ayon (4)**	**Sumasang Ayon (3)**	**Hindi Sumasang Ayon (2)**	**Lubos na Hindi Sumasang Ayon (1)**
1. Magpapabakuna ako kaagad dahil ako ay maalam sa mga pangkalusugang benepisyo ng pagiging bakunado.				
2. Magpapabakuna ako kaagad dahil ako ay may kamalayan na titiyakin nito na ligtas ang mga tao mula sa COVID-19 impeksyon.				
3. Magpapabakuna ako kaagad dahil ang impormasyon tungkol sa COVID-19 ay mapagkakatiwalaan.				
4. Magpapabakuna ako kaagad para sa *immunization* anuman kung may epekto o wala ang bakuna.				
5. Magpapabakuna ako kaagad dahil ang paghihintay sa *natural immunity* ay mayroong panganib na dala sa para sa aking kalusugan.				
6. Magpapabakuna ako kaagad upang malimitahan na ang pangangailangang paghuhugas ng kamay o paggamit ng *alcohol*.				
7. Magpapabakuna ako kaagad para hindi na ako mangangamba sa matataong lugar sa labas ng bahay.				
8. Magpapabakuna ako kaagad upang mapigilan ang impeksyon ng COVID-19 *variants*.				
9. Magpapabakuna ako kaagad para hindi magkaroon ng abala sa mga				

pampublikong lugar o transportasyon.				
I-rate ang iyong antas ng pangangailangan ng agarang pagpapabakuna.				
☐ 4 - Lubos na kailangan ☐ 3 - Kailangan ☐ 2 - Hindi kailangan ☐ 1 - Lubhang hindi kailangan				

APPENDIX E. Data Gathering Documentation



2. Vaccine Acceptance

DIRECTIONS: This section will assess your COVID-19 vaccine acceptance. Answer the following questions based on your perception of the COVID-19 vaccine.

Adapted with permission from:

	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
I would like to receive the COVID-19 vaccine right away.	○	○	○	○
I still have some concerns, so I don't want to receive the COVID-19 vaccine right away.	○	○	○	○
I am not having second thoughts about the covid-19 vaccine.	○	○	○	○
I am willing to receive the COVID-19 vaccine no matter what.	○	○	○	○

Rate your level of acceptance towards COVID-19 vaccination *

- ○ 4 - Highly Accepting
- ○ 3 - Accepting
- ○ 2 - Unaccepting
- ○ 1 - Highly Unaccepting

2. 1. Knowledge

DIRECTIONS: This section will assess the extent of your knowledge about COVID-19 and COVID-19 vaccines. Answer the following questions based on your knowledge of the given topic.

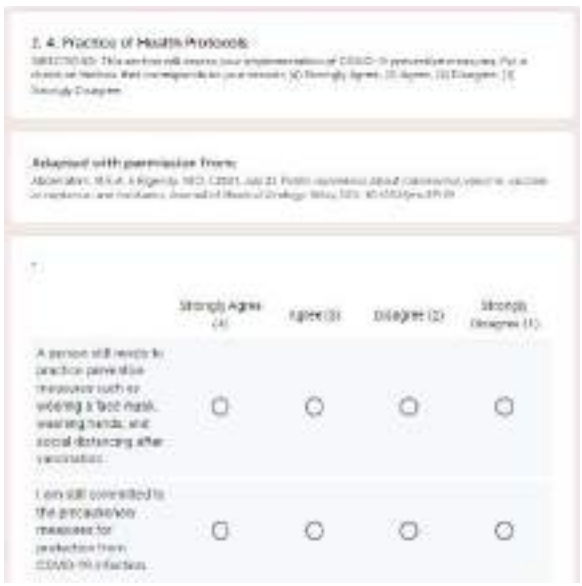
Adapted with permission from:

	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
Vaccination is highly recommended to high-risk individuals (individuals more vulnerable to the infection)	○	○	○	○
Vaccination protects the people around you.	○	○	○	○
Individuals with (a supposed) strong immune system need vaccination against diseases.	○	○	○	○
Natural protection from being infected with the disease is better than protection from vaccination.	○	○	○	○
Vaccination makes people more cautious in protecting themselves.	○	○	○	○
Vaccine-preventable diseases are not very dangerous; hence, there is no need to be vaccinated.	○	○	○	○
You are aware of the risks/side effects of the COVID-19 vaccine.	○	○	○	○

	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
Natural protection from being infected with the disease is better than protection from vaccination.	○	○	○	○
Vaccination makes people more cautious in protecting themselves.	○	○	○	○
Vaccine-preventable diseases are not very dangerous; hence, there is no need to be vaccinated.	○	○	○	○
You are aware of the risks/side effects of the COVID-19 vaccine.	○	○	○	○

Attitude towards alleged risks posed by COVID-19 vaccines *

	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
I believe that COVID-19 vaccines make a lot of money for pharmaceutical companies (companies that distribute and sell drugs).	○	○	○	○
I believe that authorities provide COVID-19 vaccine for political gain and financial gain, not for people's health.	○	○	○	○
I believe that COVID-19 vaccination programs are a big con (way of making money).	○	○	○	○



2. 4. Practice of Health Protocols

DIRECTIONS: This section will assess your implementation of COVID-19 preventive measures. Put a check on the box that corresponds to your response. (4) Strongly Agree, (3) Agree, (2) Disagree, (1) Strongly Disagree

Adapted with permission from:

Abouleish, M.A.E. & Elgendy, M.O. (2021, July 2). Public awareness about coronavirus vaccine acceptance and hesitancy. Journal of Medical Virology. DOI: 10.1002/jmv.27179

*

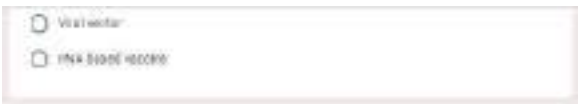
	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
A person still needs to practice preventive measures such as wearing a face mask, washing hands, and social distancing after vaccination.	○	○	○	○
I am still committed to the precautionary measures for protection from COVID-19 infection.	○	○	○	○
It is essential to avoid touching your eyes, nose, and mouth with unwashed unsanitized hands, especially during the pandemic.	○	○	○	○
Social distancing is still necessary after being completely vaccinated, even it reduces lower the risk of contracting COVID-19.	○	○	○	○
I avoid or leave crowded places when I am outside of my residence.	○	○	○	○

2. 5. Preference of Vaccine Based on the Mechanism of Action

DIRECTIONS: This section will assess your vaccine preference based on the mechanism of action. Answer the following questions based on your knowledge of the given topic.

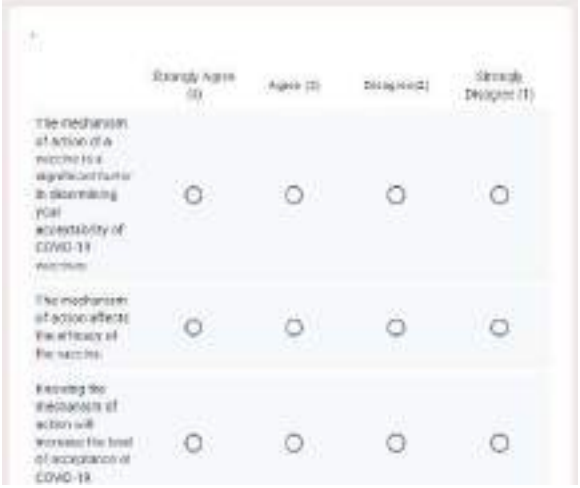
Mechanism of action * explains how the vaccine works inside the body and how it will help people in overcoming COVID-19.

Types of vaccines	Mechanism of action
Inactivated virus	The genetic material of the virus has been destroyed to remove the capacity of the virus to produce a disease.
Viral subunit	A chemical substance of the virus is used by the immune system to create white blood cells that protect the body from viral infection, without the virus present.
Viral vector	A virus that contains a specific part of the coronavirus is used to create protection against COVID-19. Once the virus infects a cell, the blood cells protecting the body against diseases will recognize the COVID-19 (as infection and will proceed to create protection against it.
RNA based vaccine	Pieces of DNA or RNA (single-stranded DNA) are used to produce an immunity by invading healthy cells that will purchase copies of the parts of the virus which will be recognized by the blood cells that protect the body against infections.



Which among the types of vaccines do you prefer based on their mechanisms of action? *

- ○ Inactivated virus
- ○ Viral subunit
- ○ Viral vector
- ○ RNA based vaccine



*

	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
The mechanism of action of a vaccine is a significant factor in determining your acceptability of COVID-19 vaccines.	○	○	○	○
The mechanism of action affects the efficacy of the vaccine.	○	○	○	○
Knowing the mechanism of action will increase the level of acceptance of COVID-19.	○	○	○	○

2. Vaccine Urgency

Urgency - the sensation that something needs immediate attention and action must be done as quickly as feasible

Vaccine urgency - eagerness of people with comorbidities to get the vaccine

DIRECTIONS: This section will assess your level of vaccine urgency. Place a checkmark [✓] on the boxes that correlate with your answer. *

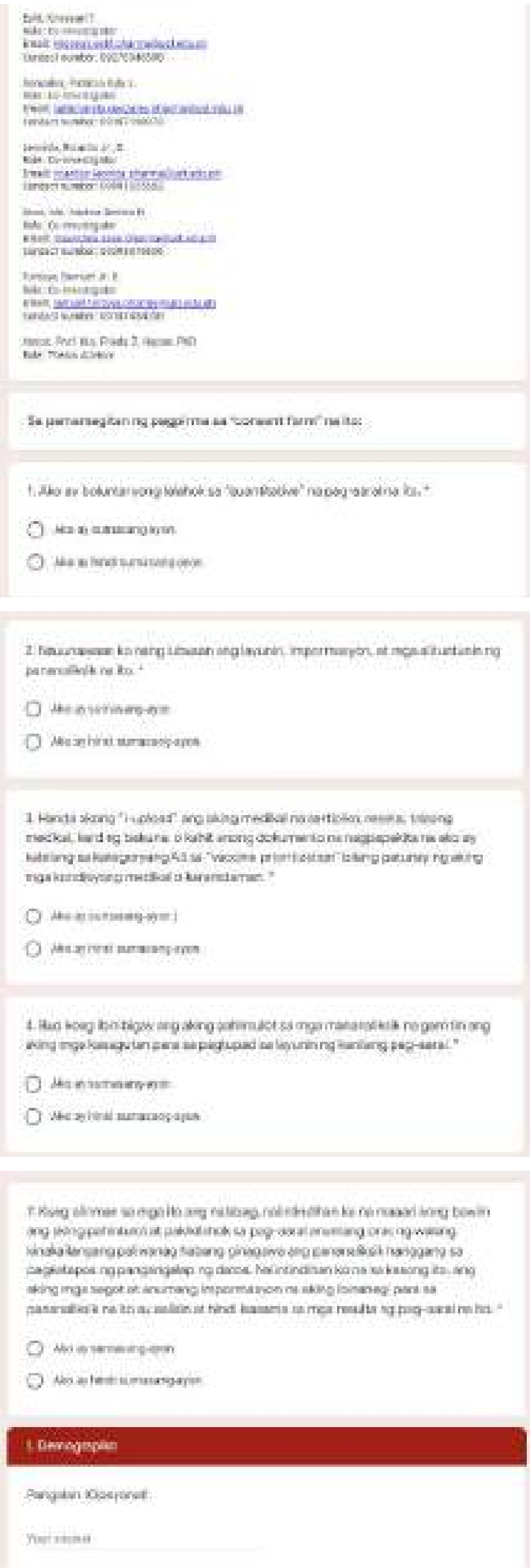
	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
I will get vaccinated immediately because I am knowledgeable of the health benefits of being vaccinated.	○	○	○	○
I will get vaccinated immediately because I am aware that it ensures that people are safe from COVID-19 infection.	○	○	○	○
I will get vaccinated immediately because the information about the COVID-19 is trustworthy.	○	○	○	○
I will get vaccinated immediately for immunization regardless of whether the vaccine has side effects or not.	○	○	○	○
I will get vaccinated immediately because waiting for natural immunity poses risks to my health.	○	○	○	○
I will get vaccinated immediately to minimize the need for washing hands or using alcohol.	○	○	○	○
I will get vaccinated immediately so as not to be afraid of crowded places outside.	○	○	○	○
I will get vaccinated immediately to prevent infection from COVID-19 variants.	○	○	○	○
I will get vaccinated immediately to not get hassled in public places or transportation.	○	○	○	○

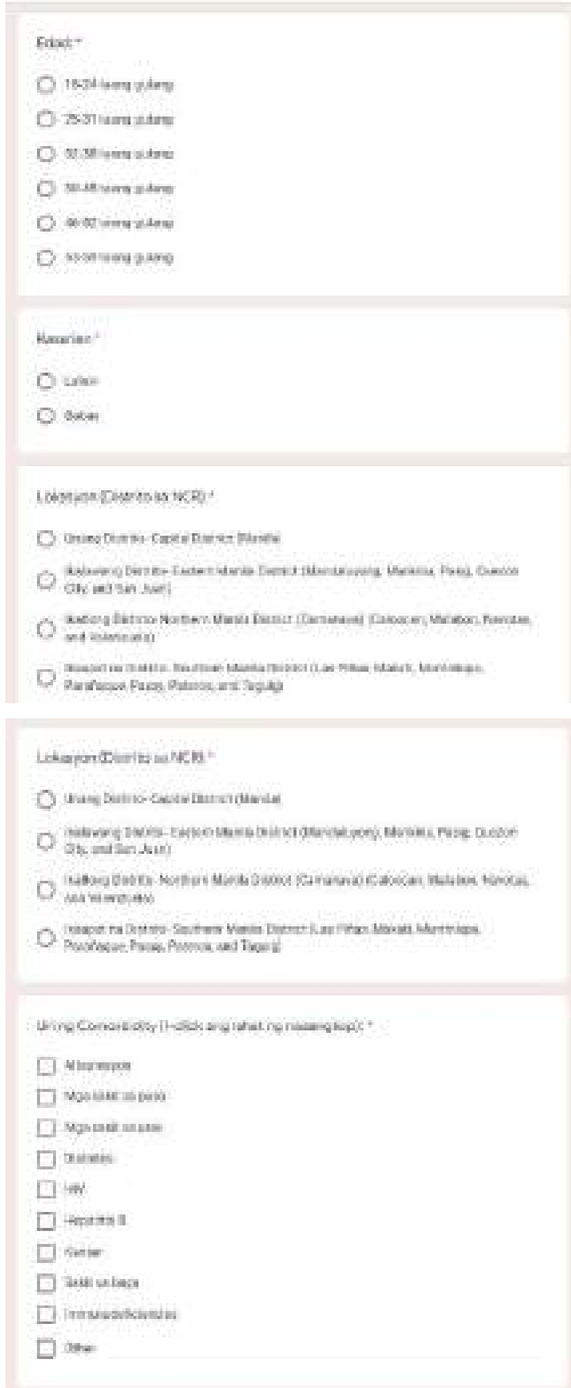
Rate your level of urgency towards COVID-19 vaccination.

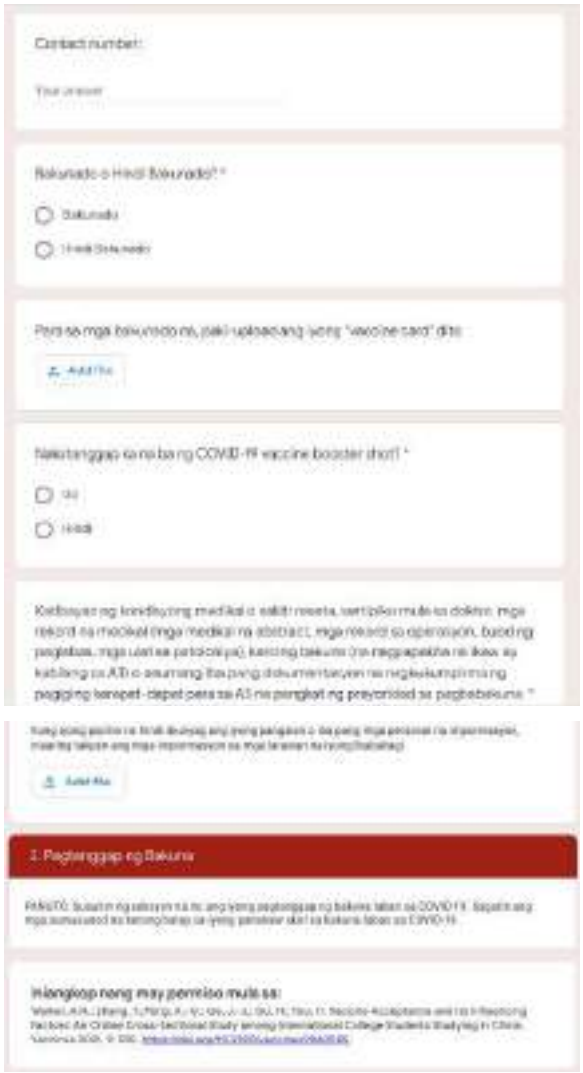
- ○ 4 - Very urgent
- ○ 3 - Urgent
- ○ 2 - Somewhat urgent
- ○ 1 - Not urgent

Informed Consent Form

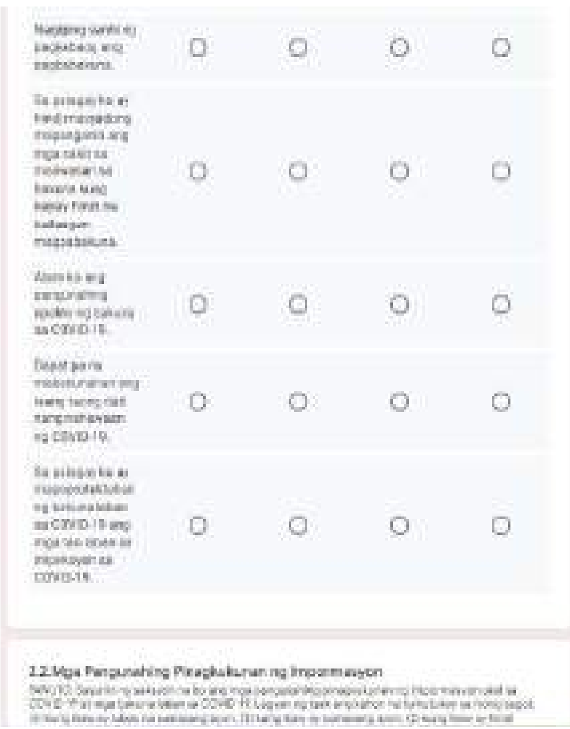
Email: [redacted]
Contact number: [redacted]


Sa pamamagitan ng pagpirma sa "consent form" na ito:
1. Ako ay boluntaryong lalahok sa "quantitative" na pag-aaral na ito. *
Ako ay sumasang-ayon.
Ako ay hindi sumasang-ayon.
2. Nauunawaan ko nang lubusan ang layunin, impormasyon, at mga alituntunin ng pananaliksik na ito. *
Ako ay sumasang-ayon.
Ako ay hindi sumasang-ayon.
3. Handa akong "i-upload" ang aking medikal na sertipiko, reseta, talaang medikal, kard ng bakuna, o kahit anong dokumento na nagpapakita na ako ay kabilang sa kategoryang A3 sa "vaccine prioritization" bilang patunay ng aking mga kondisyong medikal o karamdaman. *
Ako ay sumasang-ayon.
Ako ay hindi sumasang-ayon.
4. Buo kong ibinibigay ang aking pahintulot sa mga mananaliksik na gamitin ang aking mga kasagutan para sa pagtupad sa layunin ng kanilang pag-aaral. *
Ako ay sumasang-ayon.
Ako ay hindi sumasang-ayon.
Ako ay sumasang-ayon.
Ako ay hindi sumasang-ayon.
I. Demograpiko
Pangalan (Opsyonal):
Your answer


Edad: *
18-24 taong gulang
25-31 taong gulang
32-38 taong gulang
39-45 taong gulang
46-52 taong gulang
53-59 taong gulang
Kasarian: *
Lalaki
Babae
Lokasyon (Distrito sa NCR) *
Unang Distrito- Capital District (Manila)
Ikalawang Distrito- Eastern Manila District (Mandaluyong, Marikina, Pasig, Quezon City, and San Juan)
Ikatlong Distrito- Northern Manila District (Camanava) (Caloocan, Malabon, Navotas, and Valenzuela)
Ikaapat na Distrito- Southern Manila District (Las Piñas, Makati, Muntinlupa, Parañaque, Pasay, Pateros, and Taguig)
Lokasyon (Distrito sa NCR) *
Unang Distrito- Capital District (Manila)
Ikalawang Distrito- Eastern Manila District (Mandaluyong, Marikina, Pasig, Quezon City, and San Juan)
Ikatlong Distrito- Northern Manila District (Camanava) (Caloocan, Malabon, Navotas, and Valenzuela)
Ikaapat na Distrito- Southern Manila District (Las Piñas, Makati, Muntinlupa, Parañaque, Pasay, Pateros, and Taguig)
Uring Comorbidity (I-click ang lahat ng naaangkop): *
Altapresyon
Mga sakit sa puso
Mga sakit sa atay
Diabetes
HIV
Hepatitis B
Kanser
Sakit sa baga
Immunodeficiencies
Other:




Mga Pahayag *
Sumasang Ayon (3)
Hindi Sumasang Ayon (2)


2.2 Mga Pangunahing Pinagkukunan ng Impormasyon


2.2 Mga Pangunahing Pinagkukunan ng Impormasyon
Dyaryo
Radyo
Other


Sumasang Ayon (3)
Hindi Sumasang Ayon (2)

	Lubos na Sumasang Ayon (4)	Sumasang Ayon (3)	Hindi Sumasang Ayon (2)	Lubos na Hindi Sumasang Ayon
[illegible] mga ito.				
[illegible] sa bakuna laban sa COVID-19 ay [illegible]				

1.4. Pagsasanay ng mga Protokol sa Kalusugan

PANUTO: [illegible]

Inilangkop nang may permiso mula sa:
[illegible]

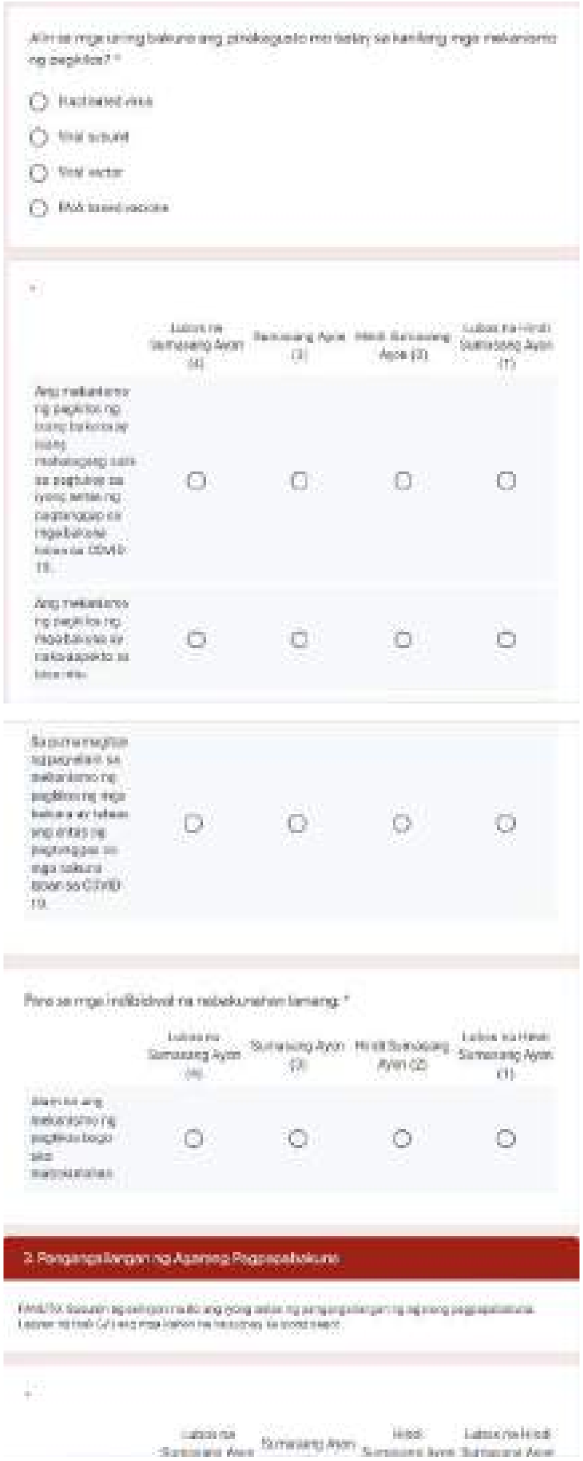
	Lubos na Sumasang Ayon (4)	Sumasang Ayon (3)	Hindi Sumasang Ayon (2)	Lubos na Hindi Sumasang Ayon
Kailangan pa ring [illegible] sa COVID-19 [illegible] face mask, [illegible] kamay, at social distancing [illegible]				
[illegible] COVID-19.				
[illegible] pandemya.				
Kailangan pa rin ang social distancing [illegible] COVID-19.				
[illegible]				

2.5. Gustong Bakuna batay sa Mekanismo ng Pagkilos

PANUTO: [illegible]

Mekanismo ng pagkilos - ipinapaliwanag kung paano gumagana ang bakuna sa loob ng katawan at kung paano ito makakatulong sa mga tao sa paglaban sa COVID-19

Mga Uri ng Bakuna	Mekanismo ng Pagkilos
Inactivated virus	[illegible]
Viral subunit	[illegible]
Viral vector	[illegible] COVID-19 [illegible]
RNA based vaccine	[illegible] DNA [illegible] RNA [illegible]



Alin sa mga uring bakuna ang pinakagusto mo batay sa kanilang mga mekanismo ng pagkilos? *

- Inactivated virus
- Viral subunit
- Viral vector
- RNA based vaccine

*

	Lubos na Sumasang Ayon (4)	Sumasang Ayon (3)	Hindi Sumasang Ayon (2)	Lubos na Hindi Sumasang Ayon (1)
Ang mekanismo ng pagkilos ng isang bakuna ay isang mahalagang salik sa pagtukoy sa iyong antas ng pagtanggap sa mga bakuna laban sa COVID-19.	○	○	○	○
Ang mekanismo ng pagkilos ng mga bakuna ay nakakaapekto sa iyong isip.	○	○	○	○
Sa pamamagitan ng pag-alam sa mekanismo ng pagkilos ng mga bakuna ay tataas ang antas ng pagtanggap sa mga bakuna laban sa COVID-19.	○	○	○	○

Para sa mga indibidwal na nabakunahan lamang: *

	Lubos na Sumasang Ayon (4)	Sumasang Ayon (3)	Hindi Sumasang Ayon (2)	Lubos na Hindi Sumasang Ayon (1)
Alam ko ang mekanismo ng pagkilos bago ako mabakunahan.	○	○	○	○

2. Pangangailangan ng Agarang Pagpapabakuna

PANUTO: Basahin ng mabuti ... ang iyong antas ng pangangailangan ng agarang pagpapabakuna. Lagyan ng tsek (✓) ang mga kahon na tumutugma sa iyong sagot.

*

	Lubos na Sumasang Ayon	Sumasang Ayon	Hindi Sumasang Ayon	Lubos na Hindi Sumasang Ayon

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	Lubos na Sumasang Ayon (4)	Sumasang Ayon (3)	Hindi Sumasang Ayon (2)	Lubos na Hindi Sumasang Ayon (1)
Magpapabakuna ako kaagad dahil ako ay madalas sa mga pangkalusugang lamasyon ng maraming tao	○	○	○	○
Magpapabakuna ako kaagad dahil ako ay may kamag-anak o kaibigan na tinamaan ng COVID-19 impeksyon	○	○	○	○
Magpapabakuna ako kaagad dahil ang impormasyon tungkol sa COVID-19 ay mapagkakatiwalaan.	○	○	○	○
Magpapabakuna ako kaagad para sa immunization anuman kung may epekto o wala ang bakuna.	○	○	○	○

RAW DATA

Path coefficients and P values

Path coefficients

	Know	Sources	Atti	Prac	Pref
Urgen	0.556	0.22	0.196	-0.036	
Accept	0.596	0.059	0.201	-0.023	0.069

P values

	Know	Sources	Atti	Prac	Pref
Urgen	<0.001	0.004	0.008	0.335	
Accept	<0.001	0.241	0.007	0.395	0.205

Standard errors for path coefficients

	Know	Sources	Atti	Prac	Pref
Urgen	0.075	0.081	0.081	0.084	
Accept	0.074	0.084	0.081	0.084	0.083

Effect sizes for path coefficients

	Know	Sources	Atti	Prac	Pref
Urgen	0.399	0.119	0.07	0.019	
Accept	0.443	0.021	0.098	0.009	0.024

Combined loadings and cross-loadings

	Know	Sources	Atti	Prac	Urgen	Accept	Pref	Type	SE	P value
Knowled	0.671	-0.18	-0.226	0.027	0.139	-0.051	-0.041	Reflect	0.073	<0.001
Knowled	0.845	-0.028	-0.151	0.257	0.215	0.023	-0.044	Reflect	0.07	<0.001
Knowled	0.766	-0.057	-0.191	-0.101	0.049	-0.056	0.112	Reflect	0.071	<0.001

Knowled	0.27	0.147	0.711	0.015	-0.492	-0.158	-0.017	Reflect	0.08	<0.001
Knowled	0.399	0.075	0.499	-0.02	-0.585	0.101	0.012	Reflect	0.077	<0.001
Knowled	0.481	0.018	0.603	-0.063	-0.371	0.212	0.041	Reflect	0.076	<0.001
Knowled	0.699	0.067	-0.146	-0.131	-0.085	0.062	0.07	Reflect	0.072	<0.001
Knowled	0.786	-0.058	-0.07	0.015	0.195	-0.114	0.008	Reflect	0.071	<0.001
Knowled	0.544	0.2	-0.182	-0.081	0.254	0.008	-0.178	Reflect	0.075	<0.001
Sources	-0.427	0.749	0.044	0.188	-0.007	0.187	0.022	Reflect	0.071	<0.001
Sources	0.226	0.906	0.032	-0.1	0.024	-0.097	-0.01	Reflect	0.069	<0.001
Sources	0.135	0.858	-0.072	-0.059	-0.019	-0.06	-0.008	Reflect	0.07	<0.001
Attitud	0.158	0.116	0.168	0.168	0.504	0.033	-0.026	Reflect	0.082	0.021
Attitud	-0.344	-0.321	0.225	-0.11	-0.16	0.531	0.137	Reflect	0.081	0.003
Attitud	-0.125	-0.293	0.673	-0.109	0.325	0.093	0.041	Reflect	0.073	<0.001
Attitud	0.342	0.097	0.192	0.147	0.263	-0.048	-0.146	Reflect	0.081	0.01
Attitud	0.044	0.026	0.613	-0.022	-0.262	-0.044	0.091	Reflect	0.074	<0.001
Attitud	0.221	0.033	0.713	0.024	-0.325	-0.108	0.135	Reflect	0.072	<0.001
Attitud	-0.186	0.082	0.516	-0.062	-0.11	0.015	-0.024	Reflect	0.075	<0.001
Attitud	-0.138	0.088	0.792	0.053	0.151	-0.094	-0.079	Reflect	0.071	<0.001
Attitud	0.111	0.099	0.801	0.034	0.013	-0.009	-0.129	Reflect	0.071	<0.001
Practic	0.028	0.027	-0.019	0.931	-0.033	0.044	-0.073	Reflect	0.068	<0.001
Practic	0.092	-0.001	-0.028	0.95	-0.007	-0.024	-0.009	Reflect	0.068	<0.001
Practic	0.028	-0.034	0.049	0.919	0.052	-0.031	-0.01	Reflect	0.069	<0.001
Practic	0.015	0.013	0.076	0.938	0.013	-0.1	0.006	Reflect	0.068	<0.001
Practic	-0.194	-0.007	-0.09	0.798	-0.03	0.13	0.101	Reflect	0.071	<0.001
Vaccine	0.233	-0.041	-0.071	0.007	0.857	0.123	0.073	Reflect	0.07	<0.001
Vaccine	0.042	0.029	-0.002	0.14	0.862	0.119	0.062	Reflect	0.07	<0.001

Vaccine	0.181	0.098	0.079	0.033	0.84	-0.152	0.041	Reflect	0.07	<0.001
Vaccine	-0.337	0.183	0.123	0.047	0.73	0.158	-0.111	Reflect	0.072	<0.001
Vaccine	0.144	0.008	-0.003	0.028	0.751	-0.128	-0.076	Reflect	0.071	<0.001
Vaccine	-0.346	-0.432	-0.172	-0.129	0.194	-0.325	0.066	Reflect	0.081	0.009
Vaccine	-0.153	-0.275	-0.072	-0.172	0.464	-0.465	0.082	Reflect	0.076	<0.001
Vaccine	0.281	0.203	-0.041	-0.096	0.785	-0.067	-0.084	Reflect	0.071	<0.001
Vaccine	-0.358	-0.393	0.063	-0.072	0.434	-0.375	0.213	Reflect	0.077	<0.001
Vaccine	-0.293	0.019	-0.032	0.003	0.607	0.65	-0.148	Reflect	0.074	<0.001
Level_o	0.114	0.023	-0.138	0.268	0.067	0.816	-0.116	Reflect	0.07	<0.001
Level_o	0.028	-0.091	0.167	-0.236	-0.213	0.752	0.111	Reflect	0.071	<0.001
Level_o	0.018	-0.079	0.138	-0.287	-0.169	0.795	0.103	Reflect	0.071	<0.001
Level_o	-0.079	0.071	-0.117	0.312	0.12	0.786	-0.126	Reflect	0.071	<0.001
Level_o	-0.086	0.073	-0.04	-0.076	0.19	0.766	0.036	Reflect	0.071	<0.001
Prefere	-0.175	-0.129	0.044	0.094	0.096	-0.048	0.892	Reflect	0.069	<0.001
Prefere	0.165	0.178	-0.123	-0.219	-0.07	0.014	0.81	Reflect	0.07	<0.001
Prefere	0.026	-0.033	0.069	0.107	-0.032	0.036	0.875	Reflect	0.069	<0.001

Notes: Loadings are unrotated and cross-loadings are oblique-rotated. SEs and P values are for loadings. P values < 0.05 are desirable for reflective indicators.

Normalized combined loadings and cross-loadings

	Know	**Sources**	**Atti**	**Prac**	**Urgen**	**Accept**	**Pref**
Knowled	0.631	-0.214	-0.268	0.032	0.164	-0.061	-0.048
Knowled	0.55	-0.04	-0.217	0.369	0.31	0.033	-0.064
Knowled	0.611	-0.062	-0.208	-0.11	0.054	-0.061	0.122
Knowled	0.384	0.147	0.714	0.015	-0.494	-0.158	-0.017
Knowled	0.529	0.079	0.522	-0.021	-0.612	0.105	0.013

Knowled	0.474	0.021	0.71	-0.074	-0.437	0.249	0.048
Knowled	0.606	0.082	-0.178	-0.159	-0.103	0.075	0.086
Knowled	0.59	-0.072	-0.088	0.019	0.243	-0.142	0.01
Knowled	0.567	0.333	-0.303	-0.135	0.423	0.013	-0.296
Sources	-0.469	0.75	0.048	0.207	-0.008	0.205	0.024
Sources	0.247	0.68	0.035	-0.11	0.027	-0.106	-0.011
Sources	0.149	0.717	-0.08	-0.065	-0.022	-0.067	-0.009
Attitud	0.275	0.201	0.124	0.292	0.876	0.058	-0.045
Attitud	-0.447	-0.416	0.457	-0.143	-0.208	0.689	0.177
Attitud	-0.16	-0.376	0.815	-0.14	0.417	0.119	0.052
Attitud	0.697	0.198	0.187	0.299	0.536	-0.099	-0.297
Attitud	0.059	0.036	0.943	-0.03	-0.353	-0.059	0.123
Attitud	0.248	0.037	0.871	0.027	-0.365	-0.121	0.152
Attitud	-0.292	0.129	0.927	-0.097	-0.173	0.024	-0.037
Attitud	-0.16	0.102	0.853	0.061	0.175	-0.109	-0.092
Attitud	0.139	0.124	0.755	0.043	0.017	-0.011	-0.161
Practic	0.03	0.029	-0.02	0.657	-0.034	0.046	-0.077
Practic	0.1	-0.001	-0.03	0.65	-0.007	-0.026	-0.01
Practic	0.031	-0.038	0.054	0.65	0.058	-0.034	-0.011
Practic	0.016	0.013	0.079	0.666	0.014	-0.105	0.006
Practic	-0.221	-0.008	-0.103	0.683	-0.034	0.148	0.115
Vaccine	0.357	-0.063	-0.109	0.01	0.58	0.188	0.111
Vaccine	0.065	0.045	-0.003	0.218	0.573	0.186	0.097
Vaccine	0.243	0.13	0.106	0.045	0.579	-0.203	0.055
Vaccine	-0.379	0.206	0.138	0.052	0.608	0.177	-0.125

Vaccine	0.191	0.011	-0.004	0.037	0.634	-0.169	-0.1
Vaccine	-0.279	-0.348	-0.139	-0.104	0.535	-0.262	0.054
Vaccine	-0.117	-0.209	-0.055	-0.131	0.872	-0.354	0.062
Vaccine	0.398	0.287	-0.058	-0.135	0.592	-0.094	-0.119
Vaccine	-0.265	-0.292	0.047	-0.053	0.861	-0.278	0.158
Vaccine	-0.343	0.022	-0.038	0.003	0.561	0.761	-0.173
Level_o	0.154	0.031	-0.187	0.363	0.091	0.555	-0.157
Level_o	0.029	-0.092	0.17	-0.24	-0.217	0.71	0.113
Level_o	0.018	-0.076	0.134	-0.279	-0.164	0.714	0.1
Level_o	-0.101	0.091	-0.15	0.397	0.153	0.563	-0.16
Level_o	-0.112	0.095	-0.052	-0.099	0.247	0.601	0.047
Prefere	-0.179	-0.132	0.045	0.096	0.097	-0.049	0.806
Prefere	0.186	0.201	-0.139	-0.247	-0.079	0.016	0.748
Prefere	0.031	-0.04	0.083	0.129	-0.039	0.044	0.694

Note: Loadings are unrotated and cross-loadings are oblique-rotated, both after separate Kaiser normalizations.

Pattern loadings and cross-loadings

	Know	**Sources**	**Atti**	**Prac**	**Urgen**	**Accept**	**Pref**
Knowled	0.776	-0.18	-0.226	0.027	0.139	-0.051	-0.041
Knowled	0.587	-0.028	-0.151	0.257	0.215	0.023	-0.044
Knowled	0.883	-0.057	-0.191	-0.101	0.049	-0.056	0.112
Knowled	0.446	0.147	0.711	0.015	-0.492	-0.158	-0.017
Knowled	0.554	0.075	0.499	-0.02	-0.585	0.101	0.012
Knowled	0.412	0.018	0.603	-0.063	-0.371	0.212	0.041
Knowled	0.784	0.067	-0.146	-0.131	-0.085	0.062	0.07

Knowled	0.766	-0.058	-0.07	0.015	0.195	-0.114	0.008
Knowled	0.43	0.2	-0.182	-0.081	0.254	0.008	-0.178
Sources	-0.427	0.758	0.044	0.188	-0.007	0.187	0.022
Sources	0.226	0.872	0.032	-0.1	0.024	-0.097	-0.01
Sources	0.135	0.886	-0.072	-0.059	-0.019	-0.06	-0.008
Attitud	0.158	0.116	-0.093	0.168	0.504	0.033	-0.026
Attitud	-0.344	-0.321	0.185	-0.11	-0.16	0.531	0.137
Attitud	-0.125	-0.293	0.614	-0.109	0.325	0.093	0.041
Attitud	0.342	0.097	-0.009	0.147	0.263	-0.048	-0.146
Attitud	0.044	0.026	0.685	-0.022	-0.262	-0.044	0.091
Attitud	0.221	0.033	0.779	0.024	-0.325	-0.108	0.135
Attitud	-0.186	0.082	0.589	-0.062	-0.11	0.015	-0.024
Attitud	-0.138	0.088	0.822	0.053	0.151	-0.094	-0.079
Attitud	0.111	0.099	0.775	0.034	0.013	-0.009	-0.129
Practic	0.028	0.027	-0.019	0.947	-0.033	0.044	-0.073
Practic	0.092	-0.001	-0.028	0.918	-0.007	-0.024	-0.009
Practic	0.028	-0.034	0.049	0.897	0.052	-0.031	-0.01
Practic	0.015	0.013	0.076	0.947	0.013	-0.1	0.006
Practic	-0.194	-0.007	-0.09	0.834	-0.03	0.13	0.101
Vaccine	0.233	-0.041	-0.071	0.007	0.587	0.123	0.073
Vaccine	0.042	0.029	-0.002	0.14	0.609	0.119	0.062
Vaccine	0.181	0.098	0.079	0.033	0.696	-0.152	0.041
Vaccine	-0.337	0.183	0.123	0.047	0.768	0.158	-0.111
Vaccine	0.144	0.008	-0.003	0.028	0.727	-0.128	-0.076
Vaccine	-0.346	-0.432	-0.172	-0.129	1.037	-0.325	0.066

Vaccine	-0.153	-0.275	-0.072	-0.172	1.169	-0.465	0.082
Vaccine	0.281	0.203	-0.041	-0.096	0.598	-0.067	-0.084
Vaccine	-0.358	-0.393	0.063	-0.072	1.157	-0.375	0.213
Vaccine	-0.293	0.019	-0.032	0.003	0.445	0.65	-0.148
Level_o	0.114	0.023	-0.138	0.268	0.067	0.651	-0.116
Level_o	0.028	-0.091	0.167	-0.236	-0.213	0.904	0.111
Level_o	0.018	-0.079	0.138	-0.287	-0.169	0.957	0.103
Level_o	-0.079	0.071	-0.117	0.312	0.12	0.68	-0.126
Level_o	-0.086	0.073	-0.04	-0.076	0.19	0.732	0.036
Prefere	-0.175	-0.129	0.044	0.094	0.096	-0.048	0.944
Prefere	0.165	0.178	-0.123	-0.219	-0.07	0.014	0.813
Prefere	0.026	-0.033	0.069	0.107	-0.032	0.036	0.819

Note: Loadings and cross-loadings are oblique-rotated.

Normalized pattern loadings and cross-loadings

	Know	**Sources**	**Atti**	**Prac**	**Urgen**	**Accept**	**Pref**
Knowled	0.921	-0.214	-0.268	0.032	0.164	-0.061	-0.048
Knowled	0.845	-0.04	-0.217	0.369	0.31	0.033	-0.064
Knowled	0.959	-0.062	-0.208	-0.11	0.054	-0.061	0.122
Knowled	0.447	0.147	0.714	0.015	-0.494	-0.158	-0.017
Knowled	0.579	0.079	0.522	-0.021	-0.612	0.105	0.013
Knowled	0.485	0.021	0.71	-0.074	-0.437	0.249	0.048
Knowled	0.955	0.082	-0.178	-0.159	-0.103	0.075	0.086
Knowled	0.953	-0.072	-0.088	0.019	0.243	-0.142	0.01
Knowled	0.716	0.333	-0.303	-0.135	0.423	0.013	-0.296
Sources	-0.469	0.832	0.048	0.207	-0.008	0.205	0.024

Sources	0.247	0.956	0.035	-0.11	0.027	-0.106	-0.011
Sources	0.149	0.981	-0.08	-0.065	-0.022	-0.067	-0.009
Attitud	0.275	0.201	-0.161	0.292	0.876	0.058	-0.045
Attitud	-0.447	-0.416	0.24	-0.143	-0.208	0.689	0.177
Attitud	-0.16	-0.376	0.789	-0.14	0.417	0.119	0.052
Attitud	0.697	0.198	-0.019	0.299	0.536	-0.099	-0.297
Attitud	0.059	0.036	0.923	-0.03	-0.353	-0.059	0.123
Attitud	0.248	0.037	0.875	0.027	-0.365	-0.121	0.152
Attitud	-0.292	0.129	0.926	-0.097	-0.173	0.024	-0.037
Attitud	-0.16	0.102	0.954	0.061	0.175	-0.109	-0.092
Attitud	0.139	0.124	0.968	0.043	0.017	-0.011	-0.161
Practic	0.03	0.029	-0.02	0.994	-0.034	0.046	-0.077
Practic	0.1	-0.001	-0.03	0.994	-0.007	-0.026	-0.01
Practic	0.031	-0.038	0.054	0.995	0.058	-0.034	-0.011
Practic	0.016	0.013	0.079	0.991	0.014	-0.105	0.006
Practic	-0.221	-0.008	-0.103	0.951	-0.034	0.148	0.115
Vaccine	0.357	-0.063	-0.109	0.01	0.899	0.188	0.111
Vaccine	0.065	0.045	-0.003	0.218	0.95	0.186	0.097
Vaccine	0.243	0.13	0.106	0.045	0.931	-0.203	0.055
Vaccine	-0.379	0.206	0.138	0.052	0.863	0.177	-0.125
Vaccine	0.191	0.011	-0.004	0.037	0.961	-0.169	-0.1
Vaccine	-0.279	-0.348	-0.139	-0.104	0.836	-0.262	0.054
Vaccine	-0.117	-0.209	-0.055	-0.131	0.89	-0.354	0.062
Vaccine	0.398	0.287	-0.058	-0.135	0.845	-0.094	-0.119
Vaccine	-0.265	-0.292	0.047	-0.053	0.859	-0.278	0.158

Vaccine	-0.343	0.022	-0.038	0.003	0.521	0.761	-0.173
Level_o	0.154	0.031	-0.187	0.363	0.091	0.881	-0.157
Level_o	0.029	-0.092	0.17	-0.24	-0.217	0.919	0.113
Level_o	0.018	-0.076	0.134	-0.279	-0.164	0.928	0.1
Level_o	-0.101	0.091	-0.15	0.397	0.153	0.867	-0.16
Level_o	-0.112	0.095	-0.052	-0.099	0.247	0.95	0.047
Prefere	-0.179	-0.132	0.045	0.096	0.097	-0.049	0.963
Prefere	0.186	0.201	-0.139	-0.247	-0.079	0.016	0.916
Prefere	0.031	-0.04	0.083	0.129	-0.039	0.044	0.985

Note: Loadings and cross-loadings shown are after oblique rotation and Kaiser normalization.

Structure loadings and cross-loadings

	Know	**Sources**	**Atti**	**Prac**	**Urgen**	**Accept**	**Pref**
Knowled	0.671	0.225	0.081	0.399	0.472	0.431	0.237
Knowled	0.845	0.461	0.164	0.663	0.694	0.586	0.381
Knowled	0.766	0.324	0.121	0.454	0.548	0.486	0.35
Knowled	0.27	0.097	0.585	0.092	0.013	0.25	0.017
Knowled	0.399	0.112	0.494	0.148	0.087	0.346	0.065
Knowled	0.481	0.137	0.642	0.171	0.235	0.523	0.107
Knowled	0.699	0.335	0.13	0.387	0.48	0.501	0.285
Knowled	0.786	0.346	0.207	0.495	0.612	0.52	0.32
Knowled	0.544	0.345	0.051	0.311	0.478	0.392	0.158
Sources	0.231	0.749	0.07	0.38	0.305	0.224	0.3
Sources	0.49	0.906	0.15	0.435	0.495	0.36	0.356
Sources	0.385	0.858	0.034	0.413	0.417	0.287	0.342
Attitud	0.62	0.482	0.168	0.549	0.692	0.528	0.36

Attitud	-0.127	-0.267	0.225	-0.244	-0.162	0.076	-0.11
Attitud	0.212	-0.063	0.673	-0.028	0.229	0.354	-0.032
Attitud	0.513	0.364	0.192	0.41	0.496	0.414	0.199
Attitud	0.093	0.001	0.613	-0.027	-0.033	0.191	-0.006
Attitud	0.237	0.07	0.713	0.102	0.066	0.278	0.094
Attitud	-0.029	-0.054	0.516	-0.133	-0.068	0.08	-0.105
Attitud	0.235	0.127	0.792	0.089	0.212	0.332	0.015
Attitud	0.376	0.168	0.801	0.157	0.308	0.443	0.024
Practic	0.574	0.462	0.112	0.931	0.475	0.401	0.446
Practic	0.603	0.472	0.075	0.95	0.503	0.379	0.496
Practic	0.579	0.438	0.13	0.919	0.497	0.377	0.47
Practic	0.548	0.459	0.114	0.938	0.481	0.332	0.491
Practic	0.407	0.38	-0.014	0.798	0.36	0.275	0.46
Vaccine	0.69	0.409	0.206	0.496	0.857	0.613	0.376
Vaccine	0.658	0.465	0.217	0.55	0.862	0.594	0.406
Vaccine	0.652	0.496	0.233	0.509	0.84	0.524	0.37
Vaccine	0.467	0.425	0.306	0.338	0.73	0.514	0.195
Vaccine	0.527	0.348	0.165	0.397	0.751	0.442	0.247
Vaccine	-0.088	-0.149	-0.206	-0.098	0.194	-0.108	-0.026
Vaccine	0.165	0.087	-0.081	0.089	0.464	0.076	0.113
Vaccine	0.623	0.471	0.179	0.412	0.785	0.501	0.281
Vaccine	0.118	0.039	0.025	0.1	0.434	0.097	0.175
Vaccine	0.449	0.266	0.295	0.245	0.607	0.612	0.101
Level_o	0.709	0.399	0.276	0.537	0.624	0.816	0.275
Level_o	0.431	0.092	0.491	0.073	0.329	0.752	0.096

Level_o	0.459	0.127	0.494	0.07	0.352	0.795	0.093
Level_o	0.628	0.405	0.246	0.521	0.607	0.786	0.261
Level_o	0.562	0.338	0.333	0.309	0.582	0.766	0.249
Prefere	0.249	0.27	0.016	0.446	0.275	0.136	0.892
Prefere	0.319	0.391	-0.039	0.357	0.296	0.213	0.81
Prefere	0.41	0.369	0.098	0.532	0.37	0.297	0.875

Note: Loadings and cross-loadings are unrotated.

Normalized structure loadings and cross-loadings

	Know	**Sources**	**Atti**	**Prac**	**Urgen**	**Accept**	**Pref**
Knowled	0.631	0.211	0.076	0.375	0.444	0.405	0.223
Knowled	0.55	0.3	0.106	0.431	0.451	0.381	0.248
Knowled	0.611	0.258	0.096	0.362	0.437	0.388	0.28
Knowled	0.384	0.138	0.83	0.131	0.018	0.355	0.024
Knowled	0.529	0.149	0.654	0.196	0.115	0.459	0.086
Knowled	0.474	0.135	0.632	0.169	0.231	0.515	0.105
Knowled	0.606	0.29	0.113	0.335	0.416	0.435	0.247
Knowled	0.59	0.26	0.155	0.372	0.46	0.391	0.24
Knowled	0.567	0.359	0.054	0.324	0.498	0.408	0.165
Sources	0.231	0.75	0.07	0.381	0.306	0.225	0.301
Sources	0.368	0.68	0.113	0.327	0.371	0.27	0.268
Sources	0.322	0.717	0.028	0.345	0.349	0.24	0.286
Attitud	0.458	0.356	0.124	0.405	0.511	0.39	0.266
Attitud	-0.258	-0.544	0.457	-0.496	-0.329	0.155	-0.225
Attitud	0.257	-0.076	0.815	-0.034	0.277	0.429	-0.039
Attitud	0.499	0.354	0.187	0.399	0.482	0.403	0.193

Attitud	0.143	0.002	0.943	-0.042	-0.051	0.294	-0.009
Attitud	0.29	0.085	0.871	0.124	0.08	0.34	0.115
Attitud	-0.052	-0.097	0.927	-0.239	-0.123	0.144	-0.189
Attitud	0.253	0.137	0.853	0.096	0.228	0.358	0.016
Attitud	0.354	0.158	0.755	0.148	0.29	0.417	0.022
Practic	0.405	0.326	0.079	0.657	0.335	0.283	0.315
Practic	0.412	0.323	0.051	0.65	0.344	0.259	0.339
Practic	0.41	0.31	0.092	0.65	0.351	0.266	0.333
Practic	0.389	0.326	0.081	0.666	0.341	0.235	0.348
Practic	0.349	0.325	-0.012	0.683	0.308	0.235	0.394
Vaccine	0.467	0.277	0.139	0.336	0.58	0.414	0.255
Vaccine	0.438	0.31	0.144	0.366	0.573	0.395	0.27
Vaccine	0.45	0.342	0.161	0.351	0.579	0.362	0.255
Vaccine	0.389	0.354	0.255	0.282	0.608	0.428	0.162
Vaccine	0.445	0.294	0.139	0.335	0.634	0.373	0.209
Vaccine	-0.241	-0.411	-0.566	-0.27	0.535	-0.298	-0.071
Vaccine	0.309	0.164	-0.152	0.167	0.872	0.144	0.213
Vaccine	0.47	0.355	0.135	0.311	0.592	0.378	0.212
Vaccine	0.233	0.078	0.05	0.199	0.861	0.192	0.346
Vaccine	0.415	0.246	0.272	0.226	0.561	0.565	0.093
Level_o	0.483	0.272	0.188	0.366	0.425	0.555	0.187
Level_o	0.407	0.087	0.463	0.069	0.31	0.71	0.09
Level_o	0.413	0.114	0.444	0.063	0.316	0.714	0.084
Level_o	0.451	0.29	0.176	0.374	0.436	0.563	0.187
Level_o	0.441	0.265	0.261	0.242	0.457	0.601	0.195

Prefere	0.225	0.244	0.015	0.403	0.249	0.123	0.806
Prefere	0.294	0.361	-0.036	0.33	0.274	0.197	0.748
Prefere	0.325	0.293	0.077	0.422	0.293	0.236	0.694

Note: Loadings and cross-loadings shown are unrotated and after Kaiser normalization.

Indicator weights

	Know	Sources	Atti	Prac	Urgen	Accept	Pref	Type (a	SE	P value	VIF	WLS	ES
Knowled	0.185	0	0	0	0	0	0	Reflect	0.081	0.012	1.771	1	0.124
Knowled	0.233	0	0	0	0	0	0	Reflect	0.08	0.002	2.95	1	0.197
Knowled	0.212	0	0	0	0	0	0	Reflect	0.081	0.005	2.096	1	0.162
Knowled	0.075	0	0	0	0	0	0	Reflect	0.083	0.185	1.613	1	0.02
Knowled	0.111	0	0	0	0	0	0	Reflect	0.083	0.092	1.949	1	0.044
Knowled	0.133	0	0	0	0	0	0	Reflect	0.082	0.054	2.526	1	0.064
Knowled	0.193	0	0	0	0	0	0	Reflect	0.081	0.009	1.721	1	0.135
Knowled	0.217	0	0	0	0	0	0	Reflect	0.081	0.004	2.147	1	0.171
Knowled	0.15	0	0	0	0	0	0	Reflect	0.082	0.034	1.355	1	0.082
Sources	0	0.354	0	0	0	0	0	Reflect	0.078	<0.001	1.401	1	0.265
Sources	0	0.428	0	0	0	0	0	Reflect	0.077	<0.001	2.386	1	0.388
Sources	0	0.405	0	0	0	0	0	Reflect	0.077	<0.001	2.06	1	0.347
Attitud	0	0	0.057	0	0	0	0	Reflect	0.084	0.249	1.599	1	0.01
Attitud	0	0	0.075	0	0	0	0	Reflect	0.083	0.186	1.256	1	0.017
Attitud	0	0	0.225	0	0	0	0	Reflect	0.081	0.003	1.511	1	0.152
Attitud	0	0	0.065	0	0	0	0	Reflect	0.084	0.219	1.535	1	0.012
Attitud	0	0	0.205	0	0	0	0	Reflect	0.081	0.006	1.605	1	0.126

Attitud	0	0	0.239	0	0	0	0	Reflect	0.08	0.002	1.782	1	0.17
Attitud	0	0	0.172	0	0	0	0	Reflect	0.082	0.018	1.374	1	0.089
Attitud	0	0	0.265	0	0	0	0	Reflect	0.08	<0.001	2.302	1	0.21
Attitud	0	0	0.268	0	0	0	0	Reflect	0.08	<0.001	2.204	1	0.215
Practic	0	0	0	0.225	0	0	0	Reflect	0.081	0.003	5.658	1	0.21
Practic	0	0	0	0.23	0	0	0	Reflect	0.08	0.002	7.457	1	0.219
Practic	0	0	0	0.222	0	0	0	Reflect	0.081	0.003	4.675	1	0.204
Practic	0	0	0	0.227	0	0	0	Reflect	0.08	0.003	5.518	1	0.213
Practic	0	0	0	0.193	0	0	0	Reflect	0.081	0.009	2.013	1	0.154
Vaccine	0	0	0	0	0.182	0	0	Reflect	0.081	0.013	4.3	1	0.156
Vaccine	0	0	0	0	0.183	0	0	Reflect	0.081	0.013	4.006	1	0.158
Vaccine	0	0	0	0	0.178	0	0	Reflect	0.081	0.015	3.061	1	0.15
Vaccine	0	0	0	0	0.155	0	0	Reflect	0.082	0.03	1.821	1	0.113
Vaccine	0	0	0	0	0.16	0	0	Reflect	0.082	0.026	2.021	1	0.12
Vaccine	0	0	0	0	0.041	0	0	Reflect	0.084	0.312	1.646	1	0.008
Vaccine	0	0	0	0	0.099	0	0	Reflect	0.083	0.118	2.413	1	0.046
Vaccine	0	0	0	0	0.167	0	0	Reflect	0.082	0.021	2.404	1	0.131
Vaccine	0	0	0	0	0.092	0	0	Reflect	0.083	0.134	2.025	1	0.04
Vaccine	0	0	0	0	0.129	0	0	Reflect	0.082	0.06	1.465	1	0.078
Level_o	0	0	0	0	0	0.266	0	Reflect	0.08	<0.001	2.477	1	0.217
Level_o	0	0	0	0	0	0.245	0	Reflect	0.08	0.001	2.761	1	0.185
Level_o	0	0	0	0	0	0.259	0	Reflect	0.08	<0.001	3.016	1	0.206
Level_o	0	0	0	0	0	0.256	0	Reflect	0.08	<0.001	2.285	1	0.201
Level_o	0	0	0	0	0	0.25	0	Reflect	0.08	0.001	1.751	1	0.191
Prefere	0	0	0	0	0	0	0.402	Reflect	0.077	<0.001	2.242	1	0.359

Prefere	0	0	0	0	0	0	0.365	Reflect	0.078	<0.001	1.584	1	0.296
Prefere	0	0	0	0	0	0	0.394	Reflect	0.077	<0.001	2.097	1	0.345

Notes: P values < 0.05 and VIFs < 2.5 are desirable for formative indicators; VIF = indicator variance inflation factor;

Latent variable coefficients

R-squared coefficients

Know	Sources	Atti	Prac	Urgen	Accept	Pref
				0.568	0.576	

Adjusted R-squared coefficients

Know	Sources	Atti	Prac	Urgen	Accept	Pref
				0.556	0.56	

Composite reliability coefficients

Know	Sources	Atti	Prac	Urgen	Accept	Pref
0.847	0.877	0.786	0.96	0.889	0.888	0.895

Cronbach's alpha coefficients

Know	Sources	Atti	Prac	Urgen	Accept	Pref
0.799	0.789	0.696	0.946	0.86	0.842	0.823

Average variances extracted

Know	Sources	Atti	Prac	Urgen	Accept	Pref
0.402	0.706	0.332	0.826	0.47	0.613	0.739

Full collinearity VIFs

Know	Sources	Atti	Prac	Urgen	Accept	Pref
3.12	1.502	1.314	1.987	2.361	2.535	1.438

Q-squared coefficients

Know	Sources	Atti	Prac	Urgen	Accept	Pref
				0.571	0.595	

Minimum and maximum values

Know	Sources	Atti	Prac	Urgen	Accept	Pref
-5.58	-4.477	-3.172	-7.079	-4.843	-3.356	-3.89
0.893	1.26	2.196	0.451	1.094	0.851	1.001

Medians (top) and modes (bottom)

Know	Sources	Atti	Prac	Urgen	Accept	Pref
0.383	-0.178	0.094	0.451	0.232	0.451	-0.035
0.893	-0.652	0.113	0.451	1.094	0.851	1.001

Skewness (top) and exc. kurtosis (bottom) coefficients

Know	Sources	Atti	Prac	Urgen	Accept	Pref
-1.835	-0.462	-0.509	-3.48	-1.565	-0.84	-0.768
5.677	1.109	0.437	17.294	4.493	-0.385	0.578

Tests of unimodality: Rohatgi-Székely (top) and Klaassen-Mokveld-van Es (bottom)

Know	Sources	Atti	Prac	Urgen	Accept	Pref
Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes	Yes

Tests of normality: Jarque–Bera (top) and robust Jarque–Bera (bottom)

Know	Sources	Atti	Prac	Urgen	Accept	Pref
No	No	No	No	No	No	No

No	Yes	No	No	No	No	No

Correlations among latent variables and errors

Correlations among l.vs. with sq. rts. of AVEs

	Know	Sources	Atti	Prac	Urgen	Accept	Pref
Know	0.634	0.448	0.34	0.6	0.705	0.715	0.378
Sources	0.448	0.84	0.103	0.488	0.489	0.35	0.397
Atti	0.34	0.103	0.576	0.094	0.246	0.468	0.031
Prac	0.6	0.488	0.094	0.909	0.512	0.39	0.52
Urgen	0.705	0.489	0.246	0.512	0.686	0.639	0.365
Accept	0.715	0.35	0.468	0.39	0.639	0.783	0.25
Pref	0.378	0.397	0.031	0.52	0.365	0.25	0.86

Note: Square roots of average variances extracted (AVEs) shown on diagonal.

P values for correlations

	Know	Sources	Atti	Prac	Urgen	Accept	Pref
Know	1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sources	<0.001	1	0.228	<0.001	<0.001	<0.001	<0.001
Atti	<0.001	0.228	1	0.269	0.003	<0.001	0.718
Prac	<0.001	<0.001	0.269	1	<0.001	<0.001	<0.001
Urgen	<0.001	<0.001	0.003	<0.001	1	<0.001	<0.001
Accept	<0.001	<0.001	<0.001	<0.001	<0.001	1	0.003
Pref	<0.001	<0.001	0.718	<0.001	<0.001	0.003	1

Correlations among l.v. error terms with VIFs

	(e)Urge	(e)Acce
(e)Urge	1.107	0.311
(e)Acce	0.311	1.107

Notes: Variance inflation factors (VIFs) shown on diagonal. Error terms included (a.k.a. residuals) are for endogenous I.vs.

P values for correlations

	(e)Urge	(e)Acce
(e)Urge	1	<0.001
(e)Acce	<0.001	1

Block variance inflation factors

	Know	Sources	Atti	Prac	Pref
Urgen	2.194	2.221	1.106	2.696	
Accept	1.674	1.395	1.248	1.496	1.327

Note: These VIFs are for the latent variables on each column (predictors), with reference to the latent variables on each row (criteria).

Indirect and total effects

Total effects

	Know	Sources	Atti	Prac	Pref
Urgen	0.556	0.22	0.196	-0.036	
Accept	0.596	0.059	0.201	-0.023	0.069

Number of paths for total effects

	Know	Sources	Atti	Prac	Pref
Urgen	1	1	1	1	
Accept	1	1	1	1	1

P values for total effects

	Know	Sources	Atti	Prac	Pref

Urgen	<0.001	0.004	0.008	0.335	
Accept	<0.001	0.241	0.007	0.395	0.205

Standard errors for total effects

	Know	Sources	Atti	Prac	Pref
Urgen	0.075	0.081	0.081	0.084	
Accept	0.074	0.084	0.081	0.084	0.083

Effect sizes for total effects

	Know	Sources	Atti	Prac	Pref
Urgen	0.399	0.119	0.07	0.019	
Accept	0.443	0.021	0.098	0.009	0.024

Causality assessment coefficients
Path-correlation signs

	Know	Sources	Atti	Prac	Pref
Urgen	1	1	1	-1	
Accept	1	1	1	-1	1

Notes: path-correlation signs; negative sign (i.e., -1) = Simpson's paradox.

R-squared contributions

	Know	Sources	Atti	Prac	Pref
Urgen	0.399	0.119	0.07	-0.019	
Accept	0.443	0.021	0.098	-0.009	0.024

Notes: R-squared contributions of predictor lat. vars.; columns = predictor lat. vars.; rows = criteria lat. vars.; negative sign = reduction in R-squared.

Path-correlation ratios

	Know	Sources	Atti	Prac	Pref
Urgen	0.775	0.406	0.549	0.068	
Accept	0.802	0.168	0.413	0.055	0.201

Notes: absolute path-correlation ratios; ratio > 1 indicates statistical suppression; 1 < ratio <= 1.7: medium; 1.7 < ratio: strong.

Path-correlation differences

	Know	Sources	Atti	Prac	Pref
Urgen	0.162	0.321	0.161	0.565	
Accept	0.147	0.293	0.286	0.433	0.273

Note: absolute path-correlation differences.

P values for path-correlation differences

	Know	Sources	Atti	Prac	Pref
Urgen	0.025	<0.001	0.025	<0.001	
Accept	0.037	<0.001	<0.001	<0.001	<0.001

Note: P values for absolute path-correlation differences

Warp2 bivariate causal direction ratios

	Know	Sources	Atti	Prac	Pref
Urgen	1.013	0.938	0.964	1.055	
Accept	0.969	1.012	1.016	0.987	0.972

Notes: Warp2 bivariate causal direction ratios; ratio > 1 supports reversed link; 1 < ratio <= 1.3: weak support; 1.3 < ratio <= 1.7 medium; 1.7 < ratio: strong.

Warp2 bivariate causal direction differences

	Know	Sources	Atti	Prac	Pref

Urgen	0.009	0.033	0.01	0.029	
Accept	0.023	0.004	0.007	0.005	0.008

Note: absolute Warp2 bivariate causal direction differences.

P values for Warp2 bivariate causal direction differences

	Know	Sources	Atti	Prac	Pref
Urgen	0.457	0.349	0.452	0.365	
Accept	0.393	0.48	0.465	0.476	0.463

Note: P values for absolute Warp2 bivariate causal direction differences.

Warp3 bivariate causal direction ratios

	Know	Sources	Atti	Prac	Pref
Urgen	1.02	0.921	0.999	1.06	
Accept	0.968	1.029	0.995	1.068	0.841

Note: Warp3 bivariate causal directional ratios; ratio > 1 supports reversed link; 1 < ratio <= 1.3: weak support; 1.3 < ratio <= 1.7 medium; 1.7 < ratio: strong.

Warp3 bivariate causal direction differences

	Know	Sources	Atti	Prac	Pref
Urgen	0.014	0.042	0	0.032	
Accept	0.024	0.01	0.003	0.028	0.055

Note: absolute Warp3 bivariate causal direction differences.

P values for Warp3 bivariate causal direction differences

	Know	Sources	Atti	Prac	Pref
Urgen	0.432	0.307	0.498	0.352	
Accept	0.39	0.452	0.488	0.37	0.258

Note: P values for absolute Warp3 bivariate causal direction differences.

Tables for Differences

Sex_Acceptance

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Level of Acceptance_1	Equal variances assumed	10.698	.001	-1.552	137	.123	-.160	.103	-.364	.044
	Equal variances not assumed			-1.226	40.083	.227	-.160	.131	-.424	.104
Level of Acceptance_2	Equal variances assumed	1.647	.202	.759	137	.449	.132	.174	-.212	.475
	Equal variances not assumed			.784	56.392	.436	.132	.168	-.205	.468
Level of Acceptance_3	Equal variances assumed	.017	.895	-.489	137	.626	-.080	.163	-.402	.243
	Equal variances not assumed			-.472	50.748	.639	-.080	.169	-.419	.259
Level of Acceptance_4	Equal variances assumed	2.406	.123	-.873	137	.384	-.111	.128	-.364	.141
	Equal variances not assumed			-.776	45.419	.442	-.111	.144	-.401	.178
Acceptance	Equal variances assumed	.095	.759	-.463	137	.644	-.064	.139	-.339	.211
	Equal variances not assumed			-.456	52.341	.650	-.064	.141	-.347	.218

Age_Acceptance

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
Level of Acceptance_1 * Age	Between Groups	(Combined)	3.281	5	.656	2.565	.030
	Within Groups		34.028	133	.256		
	Total		37.309	138			
Level of Acceptance_2 * Age	Between Groups	(Combined)	11.175	5	2.235	3.187	.009
	Within Groups		93.257	133	.701		
	Total		104.432	138			
Level of Acceptance_3 * Age	Between Groups	(Combined)	9.738	5	1.948	3.150	.010
	Within Groups		82.219	133	.618		
	Total		91.957	138			
Level of Acceptance_4 * Age	Between Groups	(Combined)	2.804	5	.561	1.388	.233
	Within Groups		53.728	133	.404		
	Total		56.532	138			
Acceptance * Age	Between Groups	(Combined)	5.076	5	1.015	2.190	.059
	Within Groups		61.672	133	.464		
	Total		66.748	138			

District_Acceptance

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
Level of Acceptance_1 * Location (Districts in NCR)	Between Groups	(Combined)	.993	3	.331	1.231	.301
	Within Groups		36.316	135	.269		
	Total		37.309	138			
Level of	Between	(Combined)	2.171	3	.724	.955	.416

Acceptance_2 * Location (Districts in NCR)	**Groups**						
	Within Groups		102.261	135	.757		
	Total		104.432	138			
Level of Acceptance_3 * Location (Districts in NCR)	**Between Groups**	**(Combined)**	.675	3	.225	.333	.802
	Within Groups		91.282	135	.676		
	Total		91.957	138			
Level of Acceptance_4 * Location (Districts in NCR)	**Between Groups**	**(Combined)**	.536	3	.179	.431	.731
	Within Groups		55.996	135	.415		
	Total		56.532	138			
Acceptance * Location (Districts in NCR)	**Between Groups**	**(Combined)**	.483	3	.161	.328	.805
	Within Groups		66.266	135	.491		
	Total		66.748	138			

Sex Urgency

Independent Samples Test				
		t-test for Equality of Means		
		t	df	Sig. (2-tailed)
Vaccine urgency_1	Equal variances assumed	-2.322	137	.022
	Equal variances not assumed	-1.838	40.175	.073
Vaccine urgency_2	Equal variances assumed	-2.365	137	.019
	Equal variances not assumed	-1.902	40.792	.064
Vaccine urgency_3	Equal variances assumed	-1.828	137	.070
	Equal variances not assumed	-1.522	42.219	.135
Vaccine urgency_4	Equal variances assumed	-1.348	137	.180
	Equal variances not assumed	-1.228	46.833	.225
Vaccine urgency_5	Equal variances assumed	-1.230	137	.221
	Equal variances not assumed	-1.150	48.441	.256
Vaccine urgency_6	Equal variances assumed	1.999	137	.048
	Equal variances not assumed	1.986	52.892	.052
Vaccine urgency_7	Equal variances assumed	-.158	137	.875
	Equal variances not assumed	-.149	49.105	.882
Vaccine urgency_8	Equal variances assumed	-1.514	137	.132
	Equal variances not assumed	-1.214	40.647	.232
Vaccine urgency_9	Equal variances assumed	.325	137	.746
	Equal variances not assumed	.318	51.619	.752
Vaccine urgency_10	Equal variances assumed	-1.688	137	.094
	Equal variances not assumed	-1.357	40.755	.182
Urgency	Equal variances assumed	-1.535	137	.127
	Equal variances not assumed	-1.213	40.118	.232

Age_Urgency

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
Vaccine urgency_1 * Age	Between Groups	(Combined)	6.340	5	1.268	5.199	.000
	Within Groups		32.437	133	.244		
	Total		38.777	138			
Vaccine urgency_2 * Age	Between Groups	(Combined)	4.944	5	.989	3.706	.004
	Within Groups		35.487	133	.267		
	Total		40.432	138			
Vaccine urgency_3 * Age	Between Groups	(Combined)	4.469	5	.894	3.130	.011
	Within Groups		37.977	133	.286		
	Total		42.446	138			
Vaccine urgency_4 * Age	Between Groups	(Combined)	1.769	5	.354	.670	.647
	Within Groups		70.246	133	.528		
	Total		72.014	138			
Vaccine urgency_5 * Age	Between Groups	(Combined)	4.181	5	.836	2.068	.073
	Within Groups		53.776	133	.404		
	Total		57.957	138			
Vaccine urgency_6 * Age	Between Groups	(Combined)	17.249	5	3.450	3.807	.003
	Within Groups		120.535	133	.906		
	Total		137.784	138			

Vaccine urgency_7 * Age	Between Groups	(Combined)	5.669	5	1.134	1.318	.260
	Within Groups		114.389	133	.860		
	Total		120.058	138			
Vaccine urgency_8 * Age	Between Groups	(Combined)	5.131	5	1.026	2.826	.019
	Within Groups		48.307	133	.363		
	Total		53.439	138			
Vaccine urgency_9 * Age	Between Groups	(Combined)	10.346	5	2.069	2.510	.033
	Within Groups		109.625	133	.824		
	Total		119.971	138			
Vaccine urgency_10 * Age	Between Groups	(Combined)	2.401	5	.480	1.760	.125
	Within Groups		36.276	133	.273		
	Total		38.676	138			
Urgency * Age	Between Groups	(Combined)	1.996	5	.399	1.223	.302
	Within Groups		43.429	133	.327		
	Total		45.424	138			

District_Urgency

ANOVA Table							
			Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Vaccine urgency_1 * Location (Districts in NCR)	Between Groups	(Combined)	2.068	3	.689	2.536	.059
	Within Groups		36.709	135	.272		
	Total		38.777	138			

Vaccine urgency_2 * Location (Districts in NCR)	Between Groups	(Combined)	1.276	3	.425	1.467	.226
	Within Groups		39.155	135	.290		
	Total		40.432	138			
Vaccine urgency_3 * Location (Districts in NCR)	Between Groups	(Combined)	.772	3	.257	.833	.478
	Within Groups		41.674	135	.309		
	Total		42.446	138			
Vaccine urgency_4 * Location (Districts in NCR)	Between Groups	(Combined)	1.260	3	.420	.801	.495
	Within Groups		70.755	135	.524		
	Total		72.014	138			
Vaccine urgency_5 * Location (Districts in NCR)	Between Groups	(Combined)	.611	3	.204	.480	.697
	Within Groups		57.346	135	.425		
	Total		57.957	138			
Vaccine urgency_6 * Location (Districts in NCR)	Between Groups	(Combined)	.505	3	.168	.165	.920
	Within Groups		137.280	135	1.017		
	Total		137.784	138			
Vaccine urgency_7 * Location (Districts in NCR)	Between Groups	(Combined)	2.801	3	.934	1.075	.362
	Within Groups		117.257	135	.869		
	Total		120.058	138			
Vaccine urgency_8 * Location (Districts in NCR)	Between Groups	(Combined)	.933	3	.311	.799	.496
	Within Groups		52.506	135	.389		
	Total		53.439	138			

Vaccine urgency_9 * Location (Districts in NCR)	Between Groups	(Combined)	.874	3	.291	.330	.804
	Within Groups		119.098	135	.882		
	Total		119.971	138			
Vaccine urgency_10 * Location (Districts in NCR)	Between Groups	(Combined)	.392	3	.131	.461	.710
	Within Groups		38.284	135	.284		
	Total		38.676	138			
Urgency * Location (Districts in NCR)	Between Groups	(Combined)	.543	3	.181	.545	.653
	Within Groups		44.881	135	.332		
	Total		45.424	138			

Descriptive Statistics					
	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Level of Acceptance_1	139	1	4	3.70	.520
Level of Acceptance_2	139	1	4	1.68	.870
Level of Acceptance_3	139	1	4	1.58	.816
Level of Acceptance_4	139	1	4	3.54	.640
Level of Acceptance_5	139	3	4	3.76	.427
Knowledge_1	139	1	4	3.69	.624
Knowledge_2	139	1	4	3.81	.443
Knowledge_3	139	1	4	3.68	.552
Knowledge_4	139	1	4	1.91	.859
Knowledge_5	139	1	4	1.50	.716

Knowledge_6	139	1	4	1.58	.731
Knowledge_7	139	1	4	3.61	.596
Knowledge_8	139	1	4	3.71	.528
Knowledge_9	139	1	4	3.65	.699
Sources of Information_2	139	1	4	3.10	.745
Sources of Information_3	139	1	4	3.42	.550
Sources of Information_4	139	1	4	3.42	.614
Attitude_1	139	1	4	3.67	.544
Attitude_2	139	1	4	3.19	.676
Attitude_3	139	1	4	2.53	.904
Attitude_4	139	1	4	3.60	.622
Attitude_5	139	1	4	2.21	.785
Attitude_6	139	1	4	1.94	.778
Attitude_7	139	1	4	2.79	.944
Attitude_8	139	1	4	2.06	.849
Attitude_9	139	1	4	1.64	.732
Practices _1	139	1	4	3.87	.396
Practices _2	139	1	4	3.85	.416
Practices _3	139	1	4	3.83	.433
Practices _4	139	1	4	3.81	.443
Practices _5	139	1	4	3.70	.534
Preference based on Mechanism_2	139	1	4	3.32	.763
Preference based on Mechanism_3	139	1	4	3.34	.718

Preference based on Mechanism_4	139	1	4	3.48	.663
Vaccine urgency_1	139	1	4	3.67	.530
Vaccine urgency_2	139	1	4	3.68	.541
Vaccine urgency_3	139	1	4	3.55	.555
Vaccine urgency_4	139	1	4	3.36	.722
Vaccine urgency_5	139	1	4	3.58	.648
Vaccine urgency_6	139	1	4	2.09	.999
Vaccine urgency_7	139	1	4	2.72	.933
Vaccine urgency_8	139	1	4	3.60	.622
Vaccine urgency_9	139	1	4	3.01	.932
Vaccine urgency_10	139	1	4	3.74	.529
Valid N (listwise)	139				

Sex_Acceptance

Group Statistics					
Sex		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Level of Acceptance_1	Male	33	3.58	.708	.123
	Female	106	3.74	.443	.043
Level of Acceptance_2	Male	33	3.42	.830	.145
	Female	106	3.29	.883	.086
Level of Acceptance_3	Male	33	3.36	.859	.150
	Female	106	3.44	.806	.078
Level of Acceptance_4	Male	33	3.45	.754	.131
	Female	106	3.57	.602	.058
Acceptance	Male	33	3.45	.711	.124
	Female	106	3.52	.693	.067

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Level of Acceptance_1	Equal variances assumed	10.698	.001	-1.552	137	.123	-.160	.103	-.364	.044
	Equal variances not assumed			-1.226	40.083	.227	-.160	.131	-.424	.104
Level of Acceptance_2	Equal variances assumed	1.647	.202	.759	137	.449	.132	.174	-.212	.475
	Equal variances not assumed			.784	56.392	.436	.132	.168	-.205	.468
Level of Acceptance_3	Equal variances assumed	.017	.895	-.489	137	.626	-.080	.163	-.402	.243
	Equal variances not assumed			-.472	50.748	.639	-.080	.169	-.419	.259
Level of Acceptance_4	Equal variances assumed	2.406	.123	-.873	137	.384	-.111	.128	-.364	.141
	Equal variances not assumed			-.776	45.419	.442	-.111	.144	-.401	.178
Acceptance	Equal variances assumed	.095	.759	-.463	137	.644	-.064	.139	-.339	.211
	Equal variances not assumed			-.456	52.341	.650	-.064	.141	-.347	.218

APPENDIX F. Letters of Permission to Authors

24 November 2021

Anita Nyarkoa Walker
School of Public Health, Nanjing Medical University

Ting Zhang
School of Public Administration, Zhejiang Gongshang University, Hangzhou 310018, China

Xue-Qing Peng
School of Public Health, Nanjing Medical University

Jin-Jin Ge
School of Public Health, Nanjing Medical University

Hai Gu
School of Government, Nanjing University, Nanjing 210093, China

Hua You
School of Public Health, Nanjing Medical University

Dear Authors,

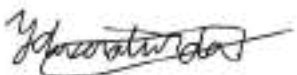
We are Third Medical Technology students from the Faculty of Pharmacy at the University of Santo Tomas, Philippines. We are conducting a study entitled ***"The Levels of Acceptance and Urgency of COVID-19 Vaccine Among Adults with Comorbidities in Metro Manila"***.

We are sincerely and respectfully asking for your permission to use the questionnaires indicated in your study entitled ***"Vaccine Acceptance and Its Influencing Factors: An Online Cross-Sectional Study among International College Students Studying in China".*** This will help us gather our data and achieve the study objectives. We would like to assure you that using your questionnaires would only be for the sole purpose of our study and will not be sold or used for any other activities. Moreover, we will cite your names in the acknowledgement and references sections of our paper.

We are very much looking forward to receiving a favorable response from this humble request.

Thank you and have a great day!

Respectfully,



Deveraturda, Ysabella Stephanie E.
Role: Third Year UST BS Medical Technology Student (Researcher)

Email: ysabellastephanie.deveraturda.pharma@ust.edu.ph

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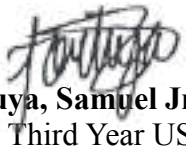

Tortuya, Samuel Jr. B.
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Email: samuel.tortuya.pharma@ust.edu.ph

Assoc. Prof. Ma. Frieda Z. Hapan, PhD

Role: Thesis Advisor

24 November 2021

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Siddharth Saravanan

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Vijayaprasad Gopichandran

Corporation Medical College and Post Graduate Institute of Medical Sciences and Research, KK Nagar, Chennai 600078, India

Dear Authors,

We are Third Medical Technology students from the Faculty of Pharmacy at the University of Santo Tomas, Philippines. We are conducting a study entitled ***"The Levels of Acceptance and Urgency of COVID-19 Vaccine Among Adults with Comorbidities in Metro Manila"***.

We are sincerely and respectfully asking for your permission to use the questionnaires indicated in your study entitled "***Attitude towards COVID 19 vaccines and vaccine hesitancy in urban and rural communities in Tamil Nadu, India – a community-based survey".*** This will help us gather our data and achieve the study objectives. We would like to assure you that using your questionnaires would only be for the sole purpose of our study and will not be sold or used for any other activities. Moreover, we will cite your names in the acknowledgment and references sections of our paper.

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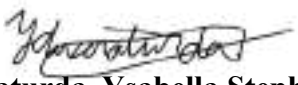

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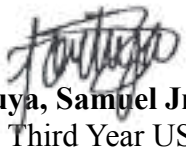

Tortuya, Samuel Jr. B.
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Assoc. Prof. Ma. Frieda Z. Hapan, PhD

Role: Thesis Advisor

24 November 2021

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Ibrahim Niankara
Department of Finance and Banking, College of Business, Al Ain University, Abu Dhabi, UAE

Rachidatou I. Traoret
Department of Economics, New Dawn University (Université Aube Nouvelle), Ouagadougou, Burkina Faso

Dear Authors,

We are Third Medical Technology students from the Faculty of Pharmacy at the University of Santo Tomas, Philippines. We are conducting a study entitled ***"The Levels of Acceptance and Urgency of COVID-19 Vaccine Among Adults with Comorbidities in Metro Manila"***.

We are sincerely and respectfully asking for your permission to use the questionnaires indicated in your study entitled "***Survey data for COVID-19 vaccine preference analysis in the United Arab Emirates".*** This will help us gather our data and achieve the study objectives. We would like to assure you that using your questionnaires would only be for the sole purpose of our study and will not be sold or used for any other activities. Moreover, we will cite your names in the acknowledgment and references sections of our paper.

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Thank you and have a great day!

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Assoc. Prof. Ma. Frieda Z. Hapan, PhD

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24 November 2021

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Mohamed E. A. Abdelrahim
Department of Clinical Pharmacy, Faculty of Pharmacy, Beni‑Suef University, Beni‑Suef, Egypt

Dear Authors,

We are Third Medical Technology students from the Faculty of Pharmacy at the University of Santo Tomas, Philippines. We are conducting a study entitled ***"The Levels of Acceptance and Urgency of COVID-19 Vaccine Among Adults with Comorbidities in Metro Manila"***.

We are sincerely and respectfully asking for your permission to use the questionnaires indicated in your study entitled ***"Public awareness about coronavirus vaccine, vaccine acceptance, and hesitancy".*** This will help us gather our data and achieve the study objectives. We would like to assure you that using your questionnaires would only be for the sole purpose of our study and will not be sold or used for any other activities. Moreover, we will cite your names in the acknowledgment and references sections of our paper.

We are very much looking forward to receiving a favorable response to this humble request.

Thank you and have a great day!

Respectfully,

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Assoc. Prof. Ma. Frieda Z. Hapan, PhD

Role: Thesis Advisor

APPENDIX G. Response of the Authors

The researchers reached out to the authors of the journals where the questionnaires were adapted through the use of email. Figure 3 up to Figure 6 shows the response of the authors which permits the researchers to use and modify the questionnaires from their respective research.

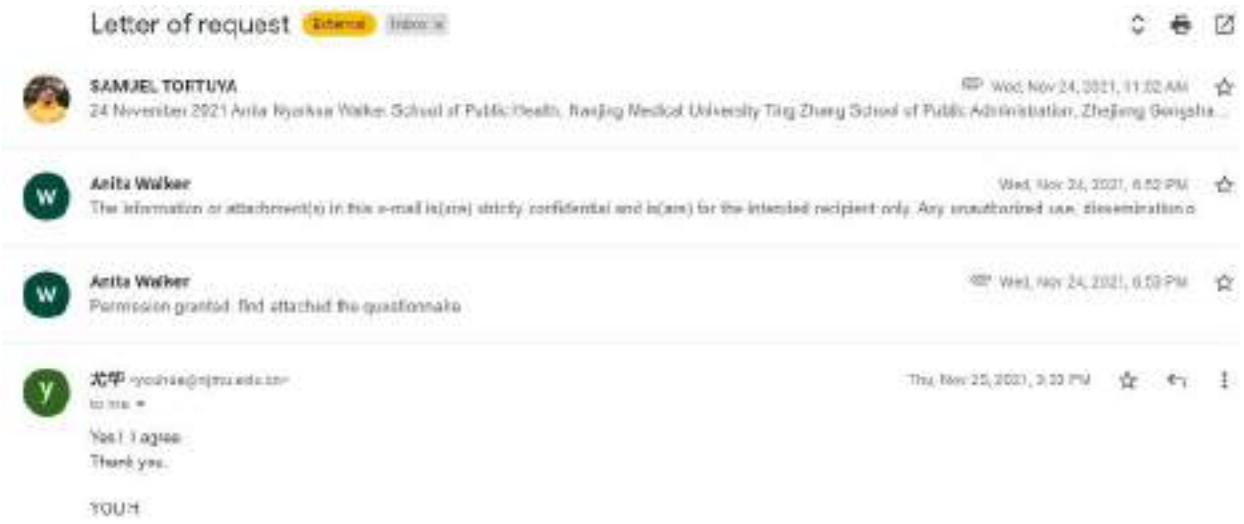

Figure 3. *You et al.'s response*

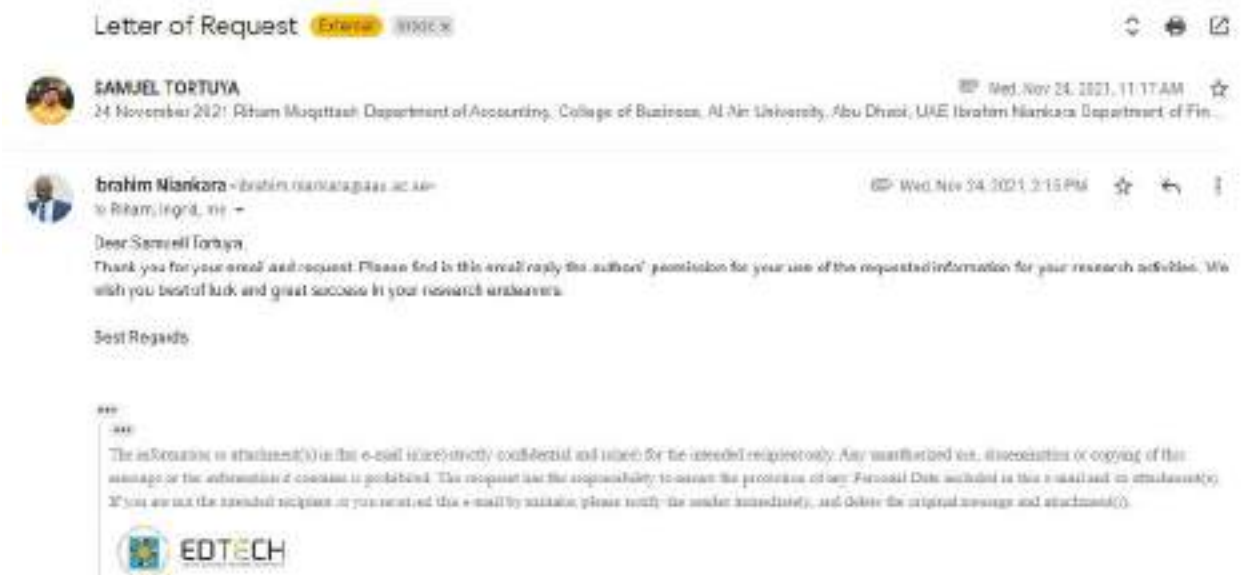

Figure 4. *Niankara et al.'s response*

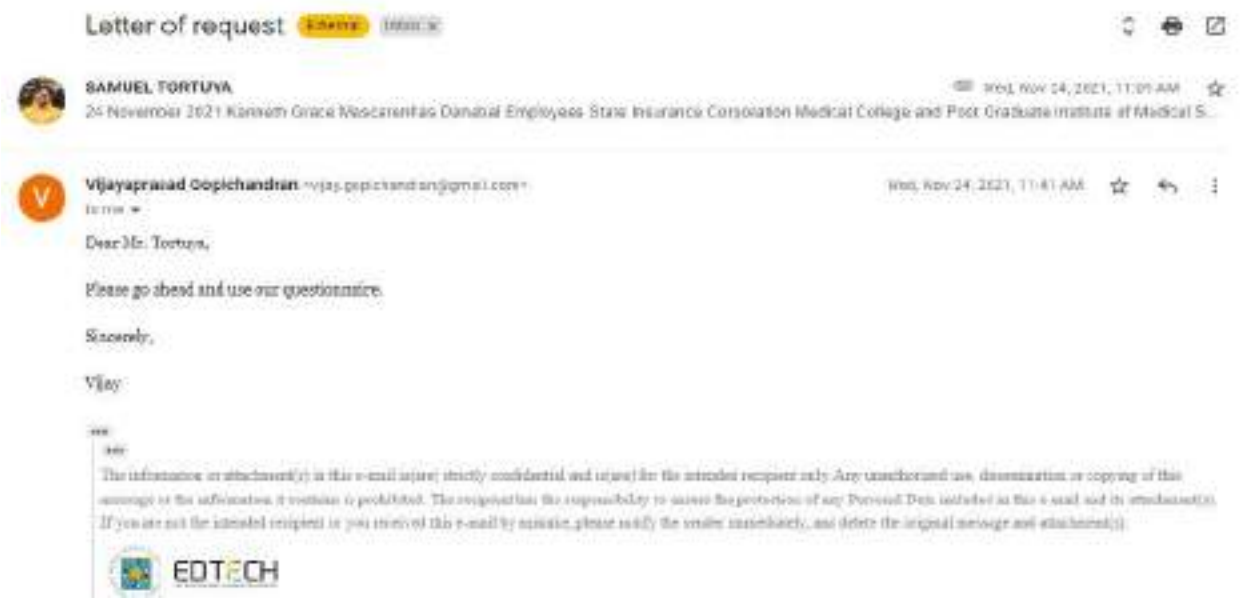

Figure 5. *Gopichandran et al.'s response*

Figure 6. *Abdelbrahim et al.'s response*

APPENDIX H. Inquiry About A3 Category of Vaccine Prioritization

Good day!

I am Samuel B. Tortuya Jr., a third-year Medical Technology student from the University of Santo Tomas (UST). We are currently in the process of conducting a thesis study entitled "The Levels of Acceptance and Urgency of COVID-19 Vaccines Among Adults with Comorbidities in Metro Manila." I would like to inquire with regards to the usage of the term "with comorbidities" in the A3 Category of vaccine prioritization. The dictionary definition of "comorbidity" is "the existence of two or more diseases." However, individuals who have only one disease are categorized under the A3 sector (with comorbidities). May we humbly request an explanation of the reason why they are still considered 'people with comorbidities' despite having only one disease.

Your answer would help us, researchers, in achieving the best outcome for our thesis proposal.

Thank you so much in advance for your assistance!

Response from the Dr. Jose Gerard B. Belimac, MD, MPH, the Team Lead of Department of Health - Infectious Diseases and Adult Health Division (Concurrent) and, Evidence Generation and Management Division:

Jose Gerard Belimac

Dear Mr Tortuya

Thank you for your message.

As regards to your query on the usage of comorbidities:
"usage of the term "with comorbidities" in the A3 Category of vaccine prioritization. The dictionary definition of "comorbidity" is "the existence of two or more diseases." However, individuals who have only one disease are being categorized under the A3 sector (with comorbidities). May we humbly request for an explanation of the reason why they are still considered as 'people with comorbidities' despite having only one disease.

The basis for identifying individuals with comorbidities is the high risk of this specific population for developing severe disease. The enumerated conditions (A3) were based on common disease conditions found in patients with severe COVID -19 thus, apart from COVID, they have the 2nd disease (eg cancer) as the comorbidity. As to your query on the rationale for people with 1 comorbidity only, these disease conditions are assumed to be underlying conditions for development of Severe covid case , or having severe outcomes , once they get infected.

Allow me to share this important information from US CDC: https://www.cdc.gov/coronavirus/2019-ncov/communication/clinical-features.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fclinical-care%2Fclinical-features.html Hope I understood your question correctly.

Yours truly,

Jose Gerard B. Belimac, MD, MPH
Team Lead
Infectious Diseases and Adult Health Division (Concurrent) and
Evidence Generation and Management Division
Department of Health

Figure 7. *Response to the Inquiry About A3 Category of Vaccine Prioritization*

UNIVERSITY OF SANTO TOMAS

Faculty of Pharmacy – Department of Medical Technology
España Blvd., Sampaloc, Manila, Philippines

APPENDIX I. Data Request of the Population Size of Adults (aged 18-59 years old) in Metro Manila

January 23, 2022

Good day!

We are third-year Medical Technology students from the University of Santo Tomas (UST). We are currently in the process of conducting a thesis study entitled "*The Levels of Acceptance and Urgency of COVID-19 Vaccines Among Adults with Comorbidities in Metro Manila*."

We would like to inquire with regards to the population of adults (18-59 years old) with comorbidities in Metro Manila (NCR). May we respectfully ask if you have existing data on the population size of individuals under the said category. If there is no data available yet, may we humbly request if you could provide us an estimated number of their population size?

Your data would help us, researchers, in determining the sample size of the target population of our study.

Rest assured that the data that you will provide will only be used for achieving the outcomes of this study and will be treated as confidential information.

Thank you so much in advance for your assistance!

Deveraturda, Ysabella Stephanie E.
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Eslit, Krissean T.
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Gonzales, Patricia Kyla L.
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Leonida, Ricardo Jr., D.
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Sese, Ma. Andrea Denise R.
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Tortuya, Samuel Jr. B.
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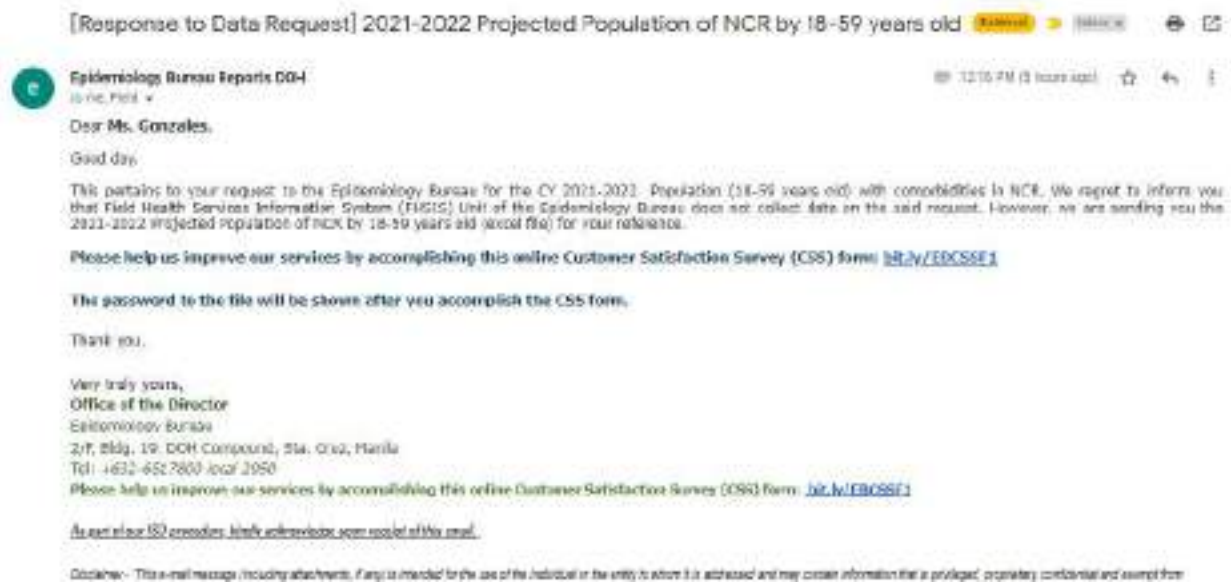
[Response to Data Request] 2021-2022 Projected Population of NCR by 18-59 years old

Epidemiology Bureau Reports DOH

Dear Ms. Gonzales,

Good day.

This pertains to your request to the Epidemiology Bureau for the CY 2021-2022 Population (18-59 years old) with comorbidities in NCR. We regret to inform you that Field Health Services Information System (FHSIS) Unit of the Epidemiology Bureau does not collect data on the said request. However, we are sending you the 2021-2022 Projected Population of NCR by 18-59 years old (excel file) for your reference.

Please help us improve our services by accomplishing this online Customer Satisfaction Survey (CSS) form: bit.ly/EDCSSF1

The password to the file will be shown after you accomplish the CSS form.

Thank you.

Very truly yours,
Office of the Director
Epidemiology Bureau
2/F, Bldg. 19, DOH Compound, Sta. Cruz, Manila
Tel: +632-651 7800 local 2950
Please help us improve our services by accomplishing this online Customer Satisfaction Survey (CSS) form: bit.ly/EBCSSF1

As part of our ISO procedure, kindly acknowledge upon receipt of this email.

Disclaimer - This e-mail message (including attachments, if any) is intended for the use of the individual or the entity to whom it is addressed and may contain information that is privileged, proprietary, confidential and exempt from

Figure 8. *Response of the Epidemiology Bureau of the Department of Health*

APPENDIX J. UST Faculty of Pharmacy Research Ethics Committee Certificate of Approval

	FACULTY OF PHARMACY RESEARCH ETHICS COMMITTEE Office, Lab 19 Mezzanine, Main Building University of Santo Tomas España, Manila, Philippines 1015 fopresc2018@gmail.com (02) 8781611 local 8481	SOP No.: 4 Form No.: 4(B) Version No.: 2 Version Date: August 2018	

14 February 2022

Deveraturda, Ysabella Stephanie
Principal Investigator
Faculty of Pharmacy
University of Santo Tomas

Re: **FOP-ERC—**2122-022

Title: The Levels of Acceptance and Urgency of COVID-19 Vaccine Among Adults with Comorbidities in Metro Manila

Dear **Ms Deveratura**:

We wish to inform you that your study protocol has been reviewed and is hereby granted approval for implementation by the **FOP Research Ethics Committee (FOPREC)**. Your study has been assigned study protocol code **FOP-ERC-**2122-022 which should be used for all communication to the FOPREC related to this study. This ethical clearance is valid until **14/02/2023.**

While the study is in progress, we request you to submit to us the following documents:

1. Any amendment/s in the protocol, especially those that may adversely affect the safety of the participants during the conduct of the study including changes in personnel, must be submitted or reported using the attached FOPREC FORM 3(A)2018: Study Protocol Amendment Submission Form.
2. Revisions in the informed consent form using the attached FOPREC FORM 3(A)2018: Study Protocol Amendment Submission Form.
3. Notice of early termination of the study and reasons for such using FOPREC FORM 3(E) 2012.
4. Any event which may have ethical significance.
5. Any information which is needed by the FOPREC to do ongoing review
6. Notice of time of completion of the study using FOPREC FORM 3(C)2018: Final Report Form.
7. Application for renewal of ethical clearance 60 days before the expiration date of this approval through submission of FOPREC FORM 3(B)2018: Continuing Review Application Form, if the study will continue beyond expiration date of ethical clearance.

Please be reminded of the principal's investigator's responsibilities as follows:

- Submit final report after completion of study
- Report protocol deviation/violation
- Comply with all relevant international and national guidelines/ regulations
- Abide by the principles of ethical research involving human participants

Thank you.

For Ethics Review Committee:

Asst. Prof. Gregorio L. Martin I, MSMT, MPH, PHD
Chair, FOPREC

USTFOPREC Form No.4 (B): Approval Letter to the Study Protocol
(Forms credit to UPMREB)

UST: A003-04-FO04(B)
AY 2018-2019

APPENDIX K. Curriculum Vitae

Ysabella Stephanie E. Deveraturda

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ysabellastephanie.deveraturda.pharma@ust.edu.ph
Blk 56 Lot 4, Victoria Homes, Tunasan, Muntinlupa City

UNDERGRADUATE RESEARCHER

PERSONAL DATA

Nationality: Filipino
Sex: Female
Marital Status: Single
Date of Birth: January 18, 2001
Religion: Roman Catholic
Place of Birth: San Pedro, Laguna

EDUCATION

Tertiary Level	University of Santo Tomas (BS in Medical Technology) España, Manila	2019 - present
Senior High School	Muntinlupa Science High School (STEM) Muntinlupa City	2017 - 2019
Secondary Level	Muntinlupa Science High School Muntinlupa City	2013 - 2017
Intermediate Level	Victoria Homes Learning Center Muntinlupa City	2010 - 2013
Primary Level	Victoria Homes Learning Center Muntinlupa City	2007 - 2010

EXTRACURRICULAR ACTIVITIES

Musikang Sikat ng mga Tomasino	2021 - 2022	Executive Coordinator to the EVP
UST Red Cross Youth Council	2021 - 2022	Public Health Committee Executive Staff
Musikang Sikat ng mga Tomasino	2020-2021	Director for Sponsorships
UST Red Cross Youth Council	2020-2021	Junior Coordinator
Musikang Sikat ng mga Tomasino	2020-2021	Executive Vice President Staff
Musikang Sikat ng mga Tomasino	2019-2020	Logistics Committee Staff
Philippine Red Cross - Muntinlupa	2018-2019	Intern
Young Readers Club	2018-2019	Grade 12 Representative
Communication, Arts, Drama, and Speech Society	2017-2018	Chairperson
Young Readers Club	2017-2018	Grade 11 Representative
Communication, Arts, Drama, and Speech Society	2016-2017	Sergeant at Arms
Communication, Arts, Drama, and Speech Society	2015-2016	Facilitator
Project Citizen	2014-2015	Representative

HONORS AND AWARDS

Dean's Lister	3rd Year College, 1st Semester	August 2021 – December 2021
Dean's Lister	2nd Year College, 1st and 2nd Semester	August 2020 – May 2021
Dean's Lister	1st Year College, 1st and 2nd Semester	August 2019 – May 2020
DOST-SEI scholarship awardee	1st to 4th year college	2019-2023
Academic Excellence Awardee	Grade 12	2018-2019
Loyalty Awardee	Grade 12	2018-2019
Academic Excellence Awardee	Grade 11	2017-2018
Loyalty Awardee	Grade 10	2016-2017
Rank 2	Grade 7	2013-2014
Batch Valedictorian	Grade 6	2012-2013
Consistent First Honor	Grade 1-5	2007-2013
Batch Salutatorian	Preschool	2006-2007

SKILLS

- Teamwork
- Open-Mindedness
- Multitasking
- Leadership skills
- Responsibility
- Management
- Active Listening
- Dedication
- Communication skills

Ysabella Stephanie E. Deveraturda

Krissean T. Eslit

UNDERGRADUATE RESEARCHER

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PERSONAL DATA

Nationality: Filipino
Sex: Female
Marital Status: Single
Date of Birth: August 26, 2000
Religion: Roman Catholic
Place of Birth: Perpetual Succor Hospital, Sampaloc, Manila

EDUCATION

Tertiary Level	University of Santo Tomas (BS in Medical Technology) España, Manila	2019 - present
Senior High School	UST Angelicum College Santa Mesa Heights, Quezon City	2017 - 2019
Secondary Level	St. Joseph School of Fairview North Fairview, Quezon City	2013 - 2017
Intermediate Level	St. Joseph School of Fairview North Fairview, Quezon City	2011 - 2013
	Enrique Villanueva Central School Tulapos, Enrique Villanueva, Siquijor	2010 - 2011
Primary Level	Enrique Villanueva Central School Tulapos, Enrique Villanueva, Siquijor	2007 - 2010

EXTRACURRICULAR ACTIVITIES

Theatre Club: Club Officer	2016 - 2017	Secretary
Grade 10: Class Officer	2016 - 2017	Secretary
Citizenship Advancement Training	2016 - 2017	SS Officer
Theatre Club (Tech and Music Department): Club Officer	2018 - 2019	President
UST Volunteer for UNICEF	2018 - 2019	Member
UST Red Cross Youth Council (Pharmacy unit)	2019 - 2021	Member

HONORS AND AWARDS

Dean's Lister	3rd Year College, 1st Semester	August 2021 – December 2021
Dean's Lister	2nd Year College, 1st and 2nd Semester	August 2020 – May 2021
Dean's Lister	1st Year College, 2nd Semester	January 2020 – May 2021
Consistent Honor Student	Grade 7 to 10	2013 - 2017
CAT Officer Certificate of Award	Grade 10	2016 - 2017
Conduct Award	Grade 10	2016 - 2017
Good Achiever	Grade 7	2013 - 2017
7th Honorable Mention	Grade 6	2012 - 2013
Consistent Honor Student	Grade 5 to 6	2011 - 2013
Consistent Top I	Grade 1 to 4	2007 - 2011

SKILLS

- Proficient in Microsoft Office
- Proficient in GSuite
- Fluent in English and Filipino
- Leadership Skills
- Communication Skills
- Writing Skills
- Reading skills

Krisseon T. Eslit

Patricia Kyla L. Gonzales

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UNDERGRADUATE RESEARCHER

PERSONAL DATA

Nationality: Filipino
Sex: Female
Marital Status: Single
Date of Birth: June 15, 2000
Religion: Roman Catholic
Place of Birth: Womens Hospital, Balanga Bataan

EDUCATION

Tertiary Level	University of Santo Tomas (BS in Medical Technology) España, Manila	2019 - Present
Senior High School	International Philippine School in Al-Khobar (STEM) Saudi Arabia	2017 - 2019
Secondary Level	International Philippine School in Al-Khobar, Saudi Arabia	2013 - 2017
Intermediate Level	International Philippine School in Al-Khobar, Saudi Arabia	2010 - 2013
Primary Level	International Philippine School in Al-Khobar, Saudi Arabia	2007 - 2010

EXTRACURRICULAR ACTIVITIES

Faculty of Pharmacy Student Council	2021 - 2022	Promotions Committee Executive Staff
UST Volunteer for UNICEF	2019 - 2020	Member
UST Mountaineering Club	2019 - 2020	Member
Faculty of Pharmacy Student Council	2019 - 2020	Promotions Committee Executive Staff
IPSA Supreme Student Government	2016 - 2017	SSG Auditor
IPSA Science Club	2013 - 2018	Club President
IPSA Table Tennis Club	2013 - 2017	Captain Ball
IPSA High School Dance Troupe	2012 - 2014	Member
IPSA High School Table Tennis Varsity	2012 - 2018	Captain Ball

HONORS AND AWARDS

Dean's Lister	3rd Year College, 1st Semester	August 2021 – December 2021
Dean's Lister	2nd Year College, 1st and 2nd Semester	August 2020 – May 2021
Dean's Lister	1st Year College, 2nd Semester	January 2020 – May 2020
Consistent High Honors	Grade 10 to 12	2016-2019
Best in Conduct Awardee	Grade 12	2018-2019
Loyalty Awardee	Grade 12	2012 - 2019
Ms. Senior High Prom Night	Grade 12	2018 - 2019
Trendsetter	Grade 10	2016 - 2017
Top 2	Grade 9	2015-2016
Top 2	Grade 7	2013-2014
Consistent Champion in Table tennis	Grade 6 to Grade 12	2012 - 2019
Loyalty Awardee (High School Table Tennis Varsity)	Grade 6 to Grade 12	2012 -2019
Mutya ng Buwan ng Wika	Grade 6	2012 - 2013

SKILLS

- Writing Skills
- Communication Skills
- Reading Skills
- Leadership / Teamwork Skills
- Proficient in Canva
- Proficient in GSuite
- Dancing
- Fluent in English and Filipino

Patricia Kyla L. Gonzales

Ricardo D. Leonida Jr.

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783 Int.214 Maria Guizon St., Barangay 152 Tondo, Manila

UNDERGRADUATE RESEARCHER

PERSONAL DATA

Nationality: Filipino
Sex: Male
Marital Status: Single
Date of Birth: July 18, 2001
Religion: Roman Catholic
Place of Birth: United Doctors Medical Center, Quezon City

EDUCATION

Tertiary Level	University of Santo Tomas (BS in Medical Technology)	2019-present
Senior High School	University of Santo Tomas Senior High School	2017-2019
Secondary Level	University of Santo Tomas Education High School	2013-2017
Primary Level	Manila Cathedral School	2007-2013

EXTRACURRICULAR ACTIVITIES

Danza Club (Dance Club)	2013 - 2017	Member
Red Cross Youth Council (Pharmacy Unit)	2019 - 2020	Crisis Management Staff
Red Cross Youth Council (Pharmacy Unit)	2020 - present	Blood Committee Staff

HONORS AND AWARDS

Dean's Lister	2nd Year College, 1st and 2nd Semester	August 2020 – May 2021
Dean's Lister	1st Year College, 1st and 2nd Semester	August 2019 – May 2020

SKILLS

- Communication skills
- Writing Skills
- Problem-solving skills
- Emotional Intelligence
- Sufficient Computer Skills
- Time management
- Team-oriented

Ricardo D. Leonida Jr.

Ma. Andrea Denise R. SESE

0929 367 6806
madrdrea.sese.pharma@ust.edu.ph
06-2 Sto. Matto St. San Antonio Valley 14, Parañaque City

UNDERGRADUATE RESEARCHER

PERSONAL DATA

Nationality: Filipino
Sex: Female
Marital Status: Single
Date of Birth: January 28, 2001
Religion: Roman Catholic
Place of Birth: Sta. Mesa, Manila

EDUCATION

Tertiary Level	University of Santo Tomas (BS in Medical Technology) España, Manila	2019 - Present
Senior High School	University of Santo Tomas Senior High School (STEM) España, Manila	2017 - 2019
Secondary Level	Parañaque Science High School Sto. Niño, Parañaque City	2013 - 2017
Intermediate Level	Mary Immaculate School San Antonio Valley 6, Parañaque City	2010 - 2013
Primary Level	Mary Immaculate School San Antonio Valley 6, Parañaque City	2007 - 2010

EXTRACURRICULAR ACTIVITIES

3rd Year (1st Semester): Class Officer	2021 - 2022	Auditor
2nd Year (2nd Semester): Class Officer	2020 - 2021	Auditor
UST Volunteer for UNICEF	2019 - 2020	Volunteer
Comach Precom Dance Troupe	2017 - 2019	Member
Performing Arts Club	2016 - 2017	President
English Club	2013 - 2017	Member
RCYC: Paranaque Science High School Unit	2013 - 2017	Member
M.I.S. Choir	2012 - 2013	Member

HONORS AND AWARDS

Dean's Lister	2nd Year College, 1st and 2nd Semester	August 2020 – May 2021
Dean's Lister	1st Year College, 2nd Semester	January 2020 – May 2020
1st Place: Shakespearean Sonnet Song Composition	Grade 7-10	June 2013 – March 2017
Overall Top 9	Grade 10	June 2016 – March 2017
Overall Top 8	Grade 9	June 2015 – March 2016
Overall Top 7	Grade 8	June 2014 – March 2015
2nd Runner-Up: Diwa Pasiklaban (Interschool Competition)	Grade 7	June 2013 – March 2014
Class Valedictorian	Grade 6	June 2012 – March 2013
Computer Awardee	Grade 6	June 2012 – March 2013
Best in CHristian Living	Primary to Intermediate Level	June 2004 – March 2013
Best in Penmanship	Primary to Intermediate Level	June 2004 – March 2013
Top 1	Primary to Intermediate Level	June 2004 – March 2013

SKILLS

- Microsoft office
- G-suite
- Data interpretation and charting
- Problem solving
- Communication Skills
- Writing proficiency
- Time management
- Adaptability
- Dancing
- Singing

Ma. Andrea Denise R. Sese

Samuel B. Tortuya Jr.

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samuelbtortuya@ust.edu.ph
88 Insurance st. Brgy. Sangandaan, Proj. 8, Quezon City

UNDERGRADUATE RESEARCHER

PERSONAL DATA

Nationality: Filipino
Sex: Male
Marital Status: Single
Date of Birth: May 18, 2001
Religion: Roman Catholic
Place of Birth: Sampaloc, Manila

EDUCATION

Tertiary Level	University of Santo Tomas (BS in Medical Technology) España, Manila	2019 - Present
Senior High School	UST Angelicum College (Science, Technology, Engineering, And Mathematics) 112 MJ Cuenco St. Sta. Mesa Heights, Quezon City, Philippines 1114	2017 - 2019
Secondary Level	Quezon City Academy 1144 Epifanio de los Santos Ave, Bago Bantay, Quezon City, 1105 Metro Manila	2013 - 2017
Intermediate Level	GSIS Village Elementary School Premium st. Brgy. Sangandaan, Proj. 8, Quezon City, Philippines	2010 - 2013
Primary Level	GSIS Village Elementary School Premium st. Brgy. Sangandaan, Proj. 8, Quezon City, Philippines	2006 - 2010

EXTRACURRICULAR ACTIVITIES

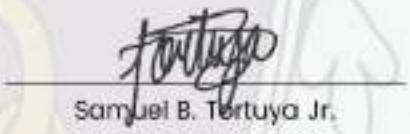
Red Cross Youth Council- Pharmacy Unit	August 2021- Present	**Member**
Red Cross Youth Council- Pharmacy Unit	August 2019-May 2020	**Member**
Angelicum Theatrum	August 2017- May 2019	**Head, Props Department**
Capstone Presentation Defense Representative	June 2016 - March 2017	**Member**
Grade 10: Class Officer	August 2016- May 2017	**Peace Officer**
Grade 9: Class Officer	August 2015- May 2016	**Peace Officer**
Grade 8: Class Officer	August 2015- May 2016	**Peace Officer**

HONORS AND AWARDS

DOST-JLSS scholarship awardee	3rd to 4th year college	2021-2023
Dean's Lister	3rd Year College, 1st Semester	August 2021 – January 2022
Dean's Lister	2nd Year College, 1st and 2nd Semester	August 2020 – May 2021
Dean's Lister	1st Year College, 2nd Semester	January 2020 – May 2020
1st Honor	Grade 10	June 2016 - March 2017
1st Honor	Grade 9	June 2015 - March 2016
2nd Honor	Grade 8	June 2014 - March 2015
3rd Honor	Grade 7	June 2013 - March 2014
6th Honor	Grade 5	June 2011 - March 2012

SKILLS

- Proficient in utilizing Microsoft Office
- Excellent reading and writing skills
- Responsive thinker
- Honest and straightforward person
- Excellent in time management and organizational skills
- Enthusiastic and self-motivated



Samuel B. Tertuya Jr.