Acceptance On COVID-19 Vaccination Among The Residents Of The Second District Of Pangasinan

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Abstract: Corona Virus Disease 2019 (COVID-19) has been an emerging global health threat that claimed millions of lives and paralyzed nation's economy. With this, immunization is highlighted as the key towards disease prevention. The present study assessed the acceptance level towards COVID-19 vaccination program. Alongside with this is the determination of the profile of the respondents in terms of age, gender, occupation, highest educational attainment, monthly family income, religious affiliation, presence of comorbidity and sources of information regarding COVID-19 vaccination. Likewise, the common concerns towards the vaccine were sought. A hypothesis on the significant correlation between the profile of the respondents and their level of acceptance towards COVID-19 vaccine was tested as well as the significant difference on the acceptance level across the profile variables. The study employed descriptive-correlational research design. A sample of 211 eligible vaccinees from Lingayen, Pangasinan was surveyed using a questionnaire. The group was dominated by mid-adults, female, with good educational background and employed but are earning below the minimum wage, Roman Catholics and without comorbidity. Results revealed that healthcare workers are the primary source of information regarding COVID-19 vaccination. The respondents in general have moderate acceptance to COVID-19 vaccination with vaccine side effects, safety and effectiveness the main concerns. The level of acceptance is significantly correlated to their age, gender, highest educational attainment, occupation, monthly family income, religious affiliation and presence of comorbidity. Further, there is a statistically significant difference on level of acceptance of the respondents when grouped according to age, gender, monthly income, religious affiliation and comorbidity status. Likewise, regardless of highest educational attainment and occupation the acceptance level of the respondents is comparable to each other. An intensive information dissemination campaign regarding COVID-19 Vaccine Immunization Program is crucial to boost vaccine confidence by the public alongside with strengthening of the capacity and capability of the health implementers. Further analysis of the results by conducting qualitative research is also recommended.

Keywords: COVID-19 Vaccination, acceptance, Pangasinan.

I. Introduction

Coronavirus Disease 2019 is a respiratory infection caused by the SARS-COV2 virus that has alarmed society globally. According to the World Health Organization (WHO), there have been 78,118,597 confirmed cases of COVID-19, including 3,864,180 deaths. In the Philippines, there are already 1,359,015 confirmed cases of COVID-19, with 23,621 deaths gaining its 24th rank among countries most affected by the pandemic (WHO Coronavirus (COVID-19) Dashboard, June 21, 2021). In Lingayen, Pangasinan, the municipality reported 457 confirmed cases and 18 deaths. Although COVID-19 is treatable most of the time with a recovery rate of 93.6%, fatality is high among groups of elderly and those with comorbidities and immunocompromised individuals. People with underlying health issues are six times more likely to be admitted, and those who do not have the condition are twelve times more likely to die from it. (Plapp, 2020). In an article titled "The COVID-19 Pandemic: A Summary," Plapp (2020) provided a comprehensive review of COVID-19. The time it takes for COVID-19 symptoms ranges from one to 14 days, with a median of 5–7 days. It can cause many symptoms, from asymptomatic infection to mild upper respiratory tract sickness to pneumonia, respiratory failure, and death. Roughly 80 percent of patients have mild to moderate disease, 15 percent have a severe course that requires intensive care, and 5 percent require mechanical ventilation. Pneumonia and acute respiratory distress syndrome arise in the most severe instances (ARDS). Meanwhile, asymptomatic patients have the same viral load as many symptomatic ones and can transmit the virus for at least 14 days. Furthermore, asymptomatic individuals affected with COVID-19 do not mean that they are free from harm; of those who had lung C.T. scans, 33–48 percent had ground-glass opacities. The virus is transmitted predominantly through droplets 5–10 m in diameter when an infected person sneezes, coughs, talks, or even exhales in transmission mode. These airborne droplets can adhere to the mucosa or conjunctiva of another person's respiratory tract. They can also stay on surfaces or fomites and spread to another person upon contact. According to researchers, an infection can be caused by as few as 1,000 SARS-CoV-2 particles. A cough or a sneeze emitted by an infected person may spread as many as 200 million virus particles. Speaking causes, a tenfold increase in virus release (200 virus particles per minute). Therefore, five or more minutes of face-to-face conversation could result in infection. However, infection with SARS-CoV-2 depends on dose and exposure time. An infected individual can inhale 1,000 virus particles in a few minutes if they cough or sneeze directly toward someone. In contrast, if they occupied a room where an infected person was breathing, it might take 50 minutes to inhale an infectious dose. In the Philippines, there are three standard methods to test COVID-19, namely RT-PCR test, antigen test, and antibody test. The Department of Health Memorandum No. 2020-0439 or the Omnibus Interim Guidelines on Prevention, Detection, Isolation, Treatment and Reintegration Strategies for COVID-19 provided salient details regarding the description and use of the said diagnostic modalities. The Real-time Reverse transcription-

polymerase Chain Reaction (RRT-PCR) Assay RRT-PCR is a molecular biology technique for detecting and amplifying the genetic material of viruses. The presence of viral proteins or antigens that are detected using an antigen test when the virus is replicating. In contrast, an antibody test detects the presence or absence of antibodies against the virus present in patient serum. The burden of the disease does not only expose the vulnerability of the health systems and affects multiple economic sectors. In October 2020, the International Labor Organization, the Food and Agriculture Organization, the International Fund for Agricultural Development, and the World Health Organization issued a joint statement stating that the COVID epidemic poses a significant threat to public health, food security, and occupational safety. The economic and social disruption caused tens of millions of people to be at risk of falling into extreme poverty. In contrast, undernourished people will increase by 132 million by 2020. More, border closures, trade restrictions, and confinement measures have prevented farmers from accessing markets, including buying inputs and selling their produce. Agricultural workers from harvesting crops, thus disrupting domestic and international food supply chains and reducing access to healthy, safe, and diverse diets. On March 12, 2020, the government initiated the first lockdown in the country's history as the alert level for the coronavirus was raised to its maximum level of Code Red Sublevel 2. This measure barred 12 million people from their movement in and out of the National Capital Region from containing the spread of the virus (Talabong, March 12, 2020). Consequently, most local government units followed the same intervention by placing respective localities in community quarantines. On the other hand, the government's measures include community lockdowns and requiring the public to observe minimum public health standards to combat the disease (mandatory use of face masks and face shields, frequent handwashing, and social distancing), the cases continued to rise. Experts believe that immunization is the only way to combat the pandemic. A.J.M.C. Center of Biosimilars (2021) asserted that government and private sectors and other stakeholders should refocus their move toward ending the pandemic through vaccine distribution. The COVID-19 vaccine deployment and vaccination program as an endeavor necessitate the participation of all members of society. Each member has a vital responsibility to uphold and a role to play. While the government leads in the deployment of vaccines and implementation of a vaccination program, the private sector and other organizations are encouraged to collaborate and work closely with the administration to achieve a well-coordinated vaccination program. (DOH, 2021). According to WHO, at least seven vaccinations spanning three platforms rolled out in countries on February 18, 2021. Vaccination is prioritized for vulnerable groups in all countries. At the same time, more than 200 other vaccine candidates are being developed, with more than 60 of them already in clinical trials. C.O.V.A.X. is part of the A.C.T. Accelerator, which WHO launched with partners in 2020. C.O.V.A.X., the vaccines pillar of A.C.T. The Accelerator, convened by C.E.P.I., Gavi, and WHO, aims to end the acute phase of the COVID-19 pandemic by accelerating the development of safe and effective vaccines against COVID-19. And supporting the development of manufacturing capabilities and working with governments and manufacturers to ensure fair and equitable vaccine allocation for all countries – the only global initiative to do so. In the Philippines, the Philippine Society of Allergy, Asthma, and Immunology [P.S.A.A.I.] (2021) grouped the COVID-19 vaccines into four categories: viral vector vaccines, mRNA vaccines, protein subunit vaccines, and whole virus vaccines. The COVID-19 spike protein is introduced into the genome of a different virus (the vector). The adenovirus is a common vector that has been stripped of its critical genetic materials for replication and rendered harmless. The viral vector then transfers the genetic information to the host cell and uses the cell's machinery to make and express the spike protein, prompting an immune response. Oxford-AstraZeneca (ChAdOx1 nCoV-19) -chimpanzee AdV, CanSino Biologics (Ad5-nCoV), Gamaleya Research Institute (Gam-COVID-Vac) -Ad5/Ad26 and Janssen (Ad26.COV2-S) -AdV26 are among the COVID-19 viral vector in Phase IIb/ III trials. The mRNA vaccines use a lipid-based nanoparticle carrier technology to allow penetration into the host cells and contain the mRNA encoding the SARS CoV-2 spike protein. After being injected, the mRNA harnesses the machinery of the human cell to generate the spike proteins that trigger an immune response. The cell's enzymes then degrade the mRNA, and therefore no viral genetic material is being integrated into the host D.N.A. On the other hand, disadvantages include that mRNA vaccines have never been licensed for use in humans. High immunogenicity may be responsible for increasing reactogenicity, which has increased local and systemic vaccination reactions. Ultra-cold storage is required for some R.N.A. vaccinations. Pfizer/BioNTech (BNT162b2/Tozinameran/Comirnaty) and Moderna COVID-19 vaccines are in Phase IIb/III trials for COVID-19 mRNA vaccines (mRNA-1273). Covid-19 protein subunit vaccines are particular segments of SARS-spike CoV-2's protein, generated and collected from non-human host cells. Adjuvants with this vaccination (e.g., polysorbate, AS03, and Matrix-M). The spike protein component, when injected, causes an immunological response. There is no active viral infection. COVID-19 Protein subunit vaccines undergoing Phase I to III trials are Sanofi Pasteur (Phase I/II), Novavax (Phase III), and Clover-GSK (Phase I/II), Clover-Dynavax (Phase III). Conventionally, whole-virus vaccines can be classified as live-attenuated or inactivated vaccines. Live attenuated vaccines contain viruses with weakened virulence, while inactivated vaccines contain viruses whose genetic material has been destroyed to prevent replication. However, inactivated vaccines can still elicit an immune response. The Sinovac vaccine, Coronavac, is an inactivated vaccine mixed with an adjuvant, an aluminum-based compound that further stimulates the immune system. COVID-19 Inactivated vaccines undergoing Phase IIb/III trials are Sinovac (Coronavac) and Sinopharm. The Food and Drug Administration (F.D.A.) in the Philippines has issued emergency use authorizations (E.U.A.) for eight COVID-19 vaccines (in chronological order): Pfizer–BioNTech, Oxford–AstraZeneca, Sinovac, Sputnik V, Janssen, Covaxin, Moderna, and Sinopharm, but only the first four vaccines are currently available and rolled out in the country. As of June 19, 2021, the country had administered 6,624,417 vaccine doses, with health personnel receiving priority, followed by senior citizens and persons with comorbidities. (Philippine COVID-19 Dashboard, June 2021). The prioritization framework for COVID-19 vaccination based on WHO-SAGE on Immunization, and together with the

recommendations of independent experts, including the Interim National Immunization Technical Advisory Group (initial) and the Technical Advisory Group (T.A.G.), Due to a global shortage of COVID-19 vaccination products, this vaccine was developed. The Philippine National Deployment and Vaccination Plan created strategies and contingencies based on this premise to assure the equal distribution of vaccination goods to all Filipinos.

Table 1:
Prioritization framework for the eligible population

Priority Eligible A	Priority Eligible B	Priority Eligible C
A1. Workers in Frontline Services	B1. Teachers, Social Workers	C. Rest of the Filipino population is not otherwise included in the above groups.
A2. All Senior Citizens	B2. Other Government Workers	
A3. Persons with Comorbidities	B3. Other Essential Workers	
A4. Frontline personnel in essential sectors, including uniformed personnel	B3. Other Essential Workers	
A5. Indigent Population	B4. Socio-demographic groups at significantly higher risk other than senior citizens and poor population based on the NHTS-PR	
	B5. Overseas Filipino Workers	
	B6. Other Remaining Workers	

In every immunization program, risk communication and community engagement are paramount. When a vaccine is introduced, it is necessary to guarantee that the population will receive the necessary information about its characteristics and benefits to boost confidence and generate demand. Demand Generation is a communication and engagement process to enable, inform, motivate and empower specific groups to access a health service and claim their right. These strategies include advocacy, ongoing community engagement and trust-building, active hesitancy prevention, regular national assessment of vaccine concerns, and crisis response planning (DOH, 2021). Strategic communications and public messaging will be critical to ensure maximum acceptance of vaccines, requiring a saturation of messaging across the national and local media platforms. This communication and messaging will target the different audience groups like opinion makers and social communicators who can influence the uptake, health care providers in both public and private sectors, and the vaccine's primary beneficiaries. Partnerships with the media are essential to ensure their support in promoting these messages (DOH, 2021). However, despite the benefits of the immunization program, vaccine hesitancy among the public remains high. Vaccine hesitancy is the delay in acceptance or refusal of vaccination despite the availability of vaccination services (WHO-SAGE on Immunization, 2015). The vaccine hesitancy working group of the Strategic Advisory Group of Experts grouped vaccine hesitancy factors into three categories: complacency, confidence, and convenience (SAGE cited in DOH,2021). In complacency, an individual has a low perceived risk of vaccine-preventable diseases, and vaccination is unnecessary. Other life/health concerns take precedence. The public has low trust levels in vaccines, the delivery system, and health authorities in terms of confidence. Under convenience, barriers related to geographic accessibility, availability, affordability, and acceptability of services were dealt with. Consequently, from the October 2020 I.D.I.D. Insight survey commissioned by the DOH Health Promotion Bureau and UNICEF, about half (52%) of the participants responded that they would get vaccines if available. Effectiveness was the most frequently cited important information necessary for deciding whether to get a vaccine, followed by side effects and safety risks. Several studies were conducted to assess the public willingness to receive the vaccine in different countries. In the study of Lazarus et al. (2020), more than 70% of their participants in Russia stated that they would be very or reasonably likely to receive a COVID-19 vaccine, with their employer's suggestion playing a significant role in their decision. Kelly et al. (2021) found the same result as healthy individuals demonstrating acceptance of the COVID-19 vaccine. However, several vulnerable populations, those without insurance and lower-income and education, reported low willingness. Conversely, Cerda and García (2021) income and education levels and having family members infected with COVID-19 were found to enhance the likelihood of people paying for a vaccine. As the epidemic advances, there is also a growing concern that people will become ill with COVID-19. Identical to the study of Feng Yang et al. (2021), people who earned high incomes carefully followed media news on the COVID-19 vaccine. They looked forward to successful vaccine research and closely followed vaccine protective efficacy, and expressed more interest in being vaccinated than other people did. In addition, people who paid attention to the protective efficacy of vaccines, vaccine price, and expert opinion were more likely to accept COVID-19 vaccination than people who focused on vaccine safety. The WHO SAGE Working Group (2021) defined vaccination hesitation and rejection under the following categories: (1) historical, socio-cultural, environmental, institutional, economic, or political aspects; (2) individual and group (personal ideas and attitudes regarding vaccinations or past vaccination experiences); and (3) vaccine/vaccination-specific (concerns about a new vaccine or formulation or the mode of administration or delivery). In Japan, vaccine hesitancy sentiments are brought by fear of side effects, mainly because COVID-19 vaccines are pretty new, and the additional side effects other than those identified from the clinical trials are unknown (Yuda & Katsuyama, 2021). Meanwhile, Stern et al. (2021) conducted a study on the willingness of detained persons to receive COVID-19 vaccination. They found out that the common reasons for COVID-19 vaccine hesitancy were waiting for more information and efficacy or safety concerns. Fear of healthcare, correctional, or government persons or institutions was the most common cause for COVID-19 immunization refusal. Arguably, trust is an intrinsic and potentially modifiable component of the successful uptake of a COVID-19 vaccine. A recent study shows that trust in government is strongly associated with vaccine acceptance and can contribute to public compliance with recommended actions. Government officials' clear and consistent

communication is crucial to building public confidence in vaccine programs. It includes explaining how vaccines work and how they are developed, from recruitment to regulatory approval based on safety and efficacy. Effective campaigns should also aim to carefully explain a vaccine's effectiveness, the time needed for protection (with multiple doses, if required), and the importance of population-wide coverage to achieve community immunity. Instilling public confidence in regulatory agency reviews of vaccine safety and effectiveness will be necessary (Lazarus et al., 2020). The present study assessed the COVID-19 vaccine acceptance among the eligible vaccinees in the Second District of Pangasinan, particularly in Lingayen, Pangasinan. Results were used to tailor interventions to achieve population protection against the virus by enhancing the demand generation for the vaccine.

Theoretical/Conceptual Framework

COVID-19 not only imposes public health threats but also exposes the vulnerability of sectors, especially the economy. A quadripartite statement of the International Labour Organization (I.L.O.), Food and Agriculture Organization (F.A.O.), International Fund for Agricultural Development (IFAD) & WHO (2020) posited that due to the pandemic, countries are forced to implement lockdowns. That caused a colossal reduction in employment, and border closures, trade restrictions, and confinement measures have prevented essential workers such as in agriculture from accessing markets. Nearly half of the world's 3.3 billion global workforces are at risk of losing their livelihoods; thus, tens of millions of people will fall into extreme poverty. COVID-19 vaccination is highlighted as the key to providing the most excellent feasibility. However, despite the massive information and education campaign being undertaken, it all boils down to the mindset and behavior of an individual.

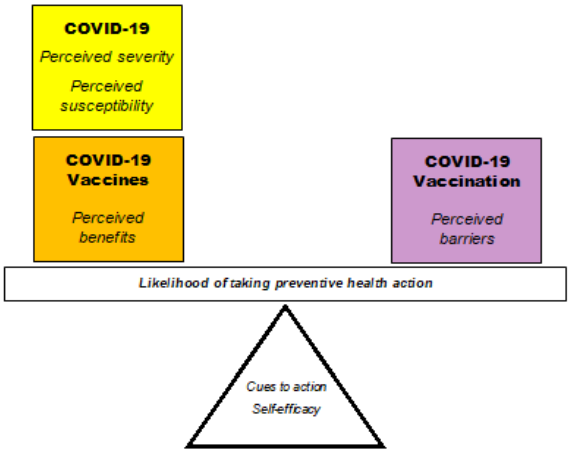

Figure 1: Health belief model toward COVID-19 and COVID-19 vaccine

The Health Belief Model by Rosenstock (1974) focuses on individual beliefs about health conditions and individual health-related behaviors. It defines the key factors that influence health behaviors as an individual's perceived threat to sickness or disease, the belief of consequence, potential positive benefits of action, perceived barriers to action, exposure to factors that prompt action, and confidence in the ability to succeed or self-efficacy (Rural Health Information Hub, 2005). In this study, the model demonstrates that if only an individual has a good perception of the severity of COVID-19 and susceptibility to acquiring the infection, he seeks and applies measures that will keep him from the deadly disease. As the COVID-19 vaccine is introduced, he can then decide its benefits over its risk. When these variables align, the likelihood of taking the preventive action (COVID-19 vaccination) increases. Subsequently, as perceived barriers such as fear of vaccine side effects, cultural or religious factors, and knowledge brought by misleading information weigh more, the likelihood of getting vaccinated decreases. Further, Figure 2 illustrates the paradigm of the research study showing the relationship between the independent and dependent variables. In Box #1, the respondents' profile includes age, gender, highest educational attainment, occupation, monthly family income, religious affiliation, comorbidity, and sources of information regarding the COVID-19 vaccine. These are regarded as the independent variables. Box #2 focused on the dependent variables, including acceptance level and shared concerns about the COVID-19 vaccine. Likewise, Box #3 deals with the proposed intervention program to improve the level of acceptance of the respondents toward the COVID-19 vaccine.

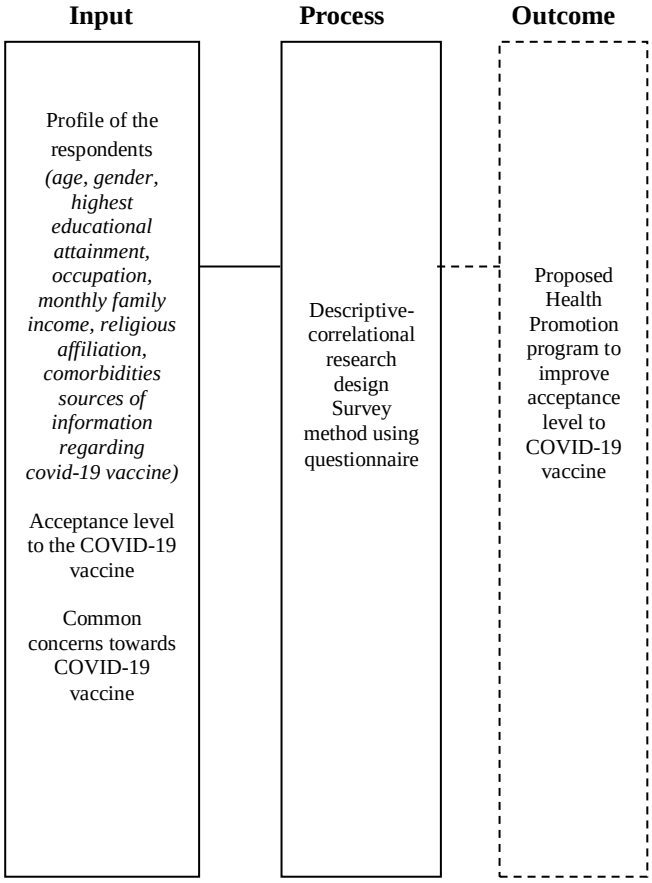

Figure 2: Research Paradigm

Statement of the Problem

This study aims to arbitrate the acceptance of COVID-19 vaccination among the Second District of Pangasinan residents**,** limited to Lingayen, Pangasinan. Specifically, it answered the following problems:

1. What is the demographic profile of the responders in terms of:
    a. age,
    b. gender,
    c. civil status,

   d. highest educational attainment,
   e. occupation,
   f. monthly family income,
   g. religious affiliation,
   h. with existing comorbidity and
   i. sources of information regarding the COVID-19 vaccine?
2. What is the acceptance level of the respondents toward the COVID-19 vaccine?
3. What are the common concerns of the respondents regarding the COVID-19 vaccine?
4. Is there significant relationship between the profile of the respondents and their level of acceptance of the COVID-19 vaccine?
5. Is there significant difference in the COVID-19 vaccine acceptance of the respondents when grouped according to their profile?
6. Based on the results, what health promotion program can be proposed concerning the acceptance level of the respondents towards the COVID-19 vaccine?

Hypotheses

The following null hypotheses were investigated in this study at a 0.05 level of significance:

1. There is no relationship between the demographic profile of the respondents and their level of acceptance of the COVID-19 vaccine.
2. There is no significant difference in COVID-19 vaccine acceptance of the respondents when grouped according to their profiles.

II. METHODOLOGY

Research Design and Strategy

This study employed a descriptive-correlational design. Omair (2015) defines descriptive-correlational design as a research design that simply describes the desired characteristics of the sample studied and tried to determine an association between the variables. More, Stangor (2011) posited that correlational research discovers relationships among variables and allows the prediction of future events from present knowledge. On the other hand, it cannot be used to draw inferences about the causal relationships between and among the variables. The rationale for using this approach is to assess the acceptance level of the eligible vaccinees for the COVID-19 vaccine. Alongside this are the determination of the profile of the respondents in terms of age, gender, occupation, highest educational attainment, monthly family income, religious affiliation, presence of comorbidity, and sources of information regarding the COVID-19 vaccine. Likewise, the common concerns of the respondents regarding the vaccine were sought. The hypothesis was tested on a significant correlation between respondents' profile and level of acceptance toward the COVID-19 vaccine and a significant difference in the acceptance level across the profile variables.

Population and Locale of the Study

This study was conducted in Lingayen, Pangasinan. Lingayen is a first-class municipality with 32 barangays and a 2021 projected population of 109,705. As of July 21, 2021, the Department of Health recorded 457 COVID-19 cases in the municipality. From the 382 target sample size computed based on the 2021 projected population of Lingayen, Pangasinan using Slovin's Formula at 95% confidence level, only 211 eligible individuals for vaccination aged 20 years old above were determined to participate in the study yielding 55% survey response rate. They were selected through purposive sampling. Although Fincham (2008) posited that response rates approximating 60% for most research should be the researchers' goal, Cleave (2020), in his article, wrote that in most cases, a survey response rate of 50% or greater is considered outstanding.

Data Gathering Tools

This study used a formulated survey questionnaire based on the review of related literature and studies. The questionnaire consists of four parts. Part 1 refers to the profile of the respondents in terms of their age, sex, educational attainment, monthly family income, comorbidity, occupation, religious affiliation, and sources of information regarding the COVID-19 vaccine. Part 2 is a 10-item test that deals level of acceptance of the respondents towards the COVID-19 vaccine in terms of indicators like benefits and risks. It is answerable by a three-point scale named "highly accepted," "moderately accepted," and "not accepted." Part 3 asks about the common concerns regarding the COVID-19 vaccine. It is a "select-all-that-applies" test from a list of possible concerns such as lack of information, side effects, and others. The questionnaire was subjected to content validation to be exacted from the adviser, the thesis panel, and as well as public health specialists (public health physicians and nurses). A Filipino version of the questionnaire, validated by a Filipino language expert, was produced for better understanding by the respondents. Afterward, a reliability test was conducted to ensure that the tool measured the respondents' responses based on their understanding. During the reliability test, questionnaires in print form were distributed to 50 individuals from Poblacion and Caloocan Sur, Binmaley, Pangasinan who were of the same sample criteria but were not part of the actual survey. Cronbach's alpha score was 0.971, implying excellent internal consistency (Gliem & Gliem, 2003). Before the pretest was distributed to the respondents, its content validity was verified. Content validity is a non-statistical validity usually associated with achievement tests and other survey questionnaires. To establish the instrument's content validity, the researcher consulted five competent health care workers and authorities in Rural Health Unit I and Rural Health Unit II of Lingayen and from the Department of Health Center for Health Development I. Following the Garett and Woodsworth (1970), who determined the test validity through the judgment of experts on the adequacy and suitability of the survey items. An Evaluation Checklist was used to establish the content validity of the test instruments. A mean rating of 4.67 was posted, which exceeded the cutoff three-point scale set by the researcher.

Data Gathering Procedures

The researcher performed the following steps for the data collection.

Step 1: Securing permission

The researcher first obtained permission from the college dean and the municipal health officer of Lingayen to conduct the study.

Step 2: Coordination with public health workers
Upon approval to conduct the study, the researcher coordinated with the public health nurses and rural health midwives to identify the respondents. The DOH Human Resource for Health and Barangay health workers were tapped for their assistance as they are more knowledgeable in their catchment areas.

Step 3: Securing the consent
In a small group setting, the researcher explained to the respondents the objectives and purpose of the study, including the right to withdraw. Informed consent forms were secured as evidence that the respondent's response was entirely voluntary.

Step 4: Survey proper and retrieve the questionnaire
Assisted by research assistants, the researcher administered the questionnaires to the respondents. The respondents were given around 5-10 minutes to answer the questionnaire. All accomplished questionnaires were handed to either the researcher or the research assistant.

Step 5: Tallying of responses
After the survey, responses were tallied and subjected to statistical treatment and analysis using statistical software.

Treatment of Data
The collected data were treated and analyzed using appropriate statistical tools.

For Problem #1, on the profile of the respondents, frequency count and percentage were used.

Formula:

$$\%=\left|\frac{f}{N}x100\right.$$

Where:
f= frequency
N= number of respondents

For Problem #2 on the level of acceptance of the respondents to the COVID-19 vaccine, a three-point scale was used. Data were measured using a weighted mean.

Formula:

$$\left|\frac{wm=[5f1+4f2+3+2f4+1f5]}{N=f1+f2+f3+f4+f5}\right.$$

Where:
∑=summative sign
F1to f5=frequency of responses per unit rate
N= total number of respondents

Descriptive interpretation of the result was based on the following rubrics in Table 3:

Table 3:
Rubrics on Interpretation of Level of Acceptance to COVID-19 Vaccination

Likert Point-Scale	Range	Descriptive Equivalence	Descriptive Interpretation
3	2.34-3.00	Highly accepted	The respondent expresses absolute acceptance of the COVID-19 vaccination, given his knowledge and understanding of the COVID-19 vaccine.
2	1.67 - 2.33	Moderately accepted	The respondent expresses acceptance of COVID-19 vaccination but still has some concerns to address.
1	1.00-1.66	Not accepted	The respondent expresses hesitancy to COVID-19 vaccination given his current knowledge and understanding of the vaccine.

For Problem #3 on the common concerns towards COVID-19 vaccine, frequency count and percentage were used.

For Problem #4, on the significant relationship between the profile of the respondents and their acceptance level of the COVID-19 vaccination, a chi-square test for independence was utilized.

For Problem #5, to find out the significant difference in the acceptance level of respondents to COVID-19 vaccination, the Kruskal Wallis H test was used.

Data were treated using statistical software. When $p<0.05$ was reached, the null hypothesis was rejected.

Ethical considerations
The researcher ensured that all respondents were protected in matters of informed consent, privacy, and confidentiality. The goal and objectives of the study were explained to them. And they could withdraw anytime during the conduct of the study. This move ensured that all their responses were entirely voluntary, and their participation was expressed in a signed informed consent form. Likewise, there was in no time that the respondents' data was disclosed but for the sole purpose of the study. A pin-codification was used on the questionnaires to keep their anonymity.

III. RESULT AND DISCUSSION

Profile of the Respondents
This section shows the distribution of the respondents based on their age, gender, highest educational attainment, occupation, monthly family income, religious affiliation, existing comorbidity, and sources of information regarding the COVID-19 vaccine. Table 4 shows that most of the respondents are aged 40-59 years old (40.8%), female (57.8%), reached college level (51.2%), employed (40.8%), have a monthly family income of less than Php5,000.00 (48.8%) and Roman Catholics (68.2%). Although those dominate the group without comorbidity (54.5%), a large percentage reported that they have hypertension (29.4%) and diabetes mellitus (19.9%). Likewise, healthcare workers (61.1%) are noted to be the primary source of information

regarding the COVID-19 vaccine, followed by social media (37.9%).

Table 4:
Distribution of the respondents according to their demographic profile (n=211)

Variables	Frequency	Percentage
Age		
20-39 years old	77	36.5
40-59 years old	86	40.8
60 years old and above	48	22.7
Gender		
Male	89	42.2
Female	122	57.8
Highest educational attainment		
Elementary level	33	15.6
High school level	70	33.2
College level	108	51.2
Occupation		
Employed	86	40.8
Self-employed	82	38.9
Unemployed	43	20.4
Monthly family income		
Less than Php5,000.00	103	48.8
Php5,0000-10,000.00	30	14.2
Php10,001-15,000.00	36	17.1
Php15,001-20,000.00	19	9.0
Php20,000-25,000.00	13	6.2
Above Php25,000.00	10	4.7
Religious affiliation		
Roman Catholics	144	68.2
Iglesia ni Cristo	23	10.9
Born Again Christians	35	16.6
Islam	7	3.3
Jehovah's Witnesses	2	.9
Existing comorbidity		
None	115	54.5
Hypertension	62	29.4
Diabetes	42	19.9
Heart disease	15	7.1
Cancer	2	.9
Sources of information regarding COVID-19 vaccine		
Healthcare worker	129	61.1
Social media	80	37.9
Family/relatives	56	26.5
Friends	34	16.1
Workplace	19	9.0

Level of acceptance to COVID-19 vaccination

This section deals with the level of acceptance of respondents to COVID-19 vaccination in terms of benefits, risks, side effects, long-term effects, group prioritization, vaccination process, vaccination schedule and venue, preparation, post-vaccination instructions, and trust in health workers.

The present study shows that the respondents have moderate acceptance of COVID-19 vaccination with AWM=2.11. The respondents gave the highest acceptance score to the vaccination benefits, including providing personal protection against COVID-19 and herd immunity for the population (WM=2.30, SD=.726), followed by their trust in the competence of the health worker (WM=2.29, SD=.708).

Preparation includes getting rest and securing a medical certificate among persons with comorbidities (WM=2.28, SD=.700) and post-vaccination instructions such as avoiding strenuous activities and alcohol consumption in a certain period (WM=2.28, SD=.692) got the same score that also demonstrates moderate acceptance. Similarly, the respondents affirmed the same sentiment regarding the vaccination process, including registration, screening, physical assessment, counseling, and securing of informed consent prior to inoculation and at least 15-minute post-vaccination monitoring (WM=2.18, SD=.708), vaccination schedule depending on the availability of vaccine and fixed vaccination site (WM=2.18, SD=.710) and target group prioritization that initializes health workers, senior citizens and persons with existing comorbidity (WM=2.01, SD=.640).

On the other hand, the item that pertains to vaccination risks, such as the COVID-19 vaccine, may cause severe yet rare complications such as clotting disorders and allergic reactions, getting the lowest acceptance score of WM=1.69 (SD=.687). Other items that got low scores include long-term effects that are currently not fully known (WM=1.96, SD=.627) and side effects such as fever, nausea, fatigue, and pain at the injection site (WM=1.89, SD=.611).

COVID-19 pandemic has become a cause of global crisis not only for the health of the people but also for a nation's economy. Like any other communicable disease, immunization is still stressed as one of the primary disease prevention strategies alongside adherence to the minimum public health standards. Consequently, due to the shorter period of COVID-19 vaccine development, many doubted its efficacy, especially the safety profile (Stern et al., 2021).

The European Medicines Agency (March 18, 2021) reported that a particular immunization could be linked to occasional occurrences of blood clots and thrombocytopenia, with or without bleeding. It also includes rare cases of clots in the vessels draining blood from the brain; however, a causal link to the vaccine could not be established. Nevertheless, the agency affirmed that the cases deserve further analysis. On the other hand, it proved that the vaccine's benefits in countering COVID-19's still-present threat outweigh the risk of side effects.

Table 5:
Summary of frequency count, weighted mean, and standard deviation of acceptances scores of the respondents towards COVID-19 vaccination (n=211)

Items		Weighted mean (Standard deviation)		Interpretation
1.	Benefits as COVID-19 vaccine provides protection against the infection and can produce herd immunity in the community when most of the population is inoculated.	2.30 (.726)	MA	Moderately accepted
2.	Risks such as the COVID-19 vaccine may cause severe yet rare complications such as clotting disorders and allergic reactions.	1.69 (.687)	MA	Moderately accepted
3.	Side effects of the COVID-19 vaccine may cause fever, fatigue, nausea, and pain at the injection site.	1.89 (.611)	MA	Moderately accepted
4.	Inoculations have long-term impacts that are not yet fully understood..	1.96 (.627)	MA	Moderately accepted
5.	Group prioritization as health workers, the elderly, and persons with comorbidities are the primary target population for vaccination.	2.01 (.640)	MA	Moderately accepted
6.	The vaccination process as each client should undergo registration, screening and physical assessment, counseling, and securing of informed consent before getting inoculated. Afterward, he stays for at least 15 minutes for post-vaccination monitoring.	2.18 (.708)	MA	Moderately accepted
7.	Schedule of vaccination as this depends on the availability of the COVID-19 vaccine to the RHU. Likewise, vaccination activity is only conducted in the approved fixed vaccination site.	2.18 (.710)	MA	Moderately accepted
8.	Preparation for vaccination as each client is informed to get rested prior to vaccination and secure medical certificate among persons with comorbidities.	2.28 (.700)	MA	Moderately accepted
9.	Do's and don'ts post-vaccination as each client is informed to get rested post-vaccination and avoid strenuous activities for the next 2-3 days or until side effects subside. Alcohol consumption is also discouraged.	2.28 (.692)	MA	Moderately accepted
10.	Trust the health worker as the client finds the health worker to be competent in carrying out his function.	2.29 (.708)	MA	Moderately accepted
Average weighted mean (AWM)		2.11	MA	Moderately accepted

Common concerns about COVID-19 vaccination

The present study demonstrates that the experience of side effects remains the respondents' top concern regarding COVID-19 vaccination, with a response percentage of 82.9%, followed by safety and effectiveness with 73.9% and 69.2%, respectively. Subsequently, lack of information regarding the COVID-19 vaccines (39.3%), freedom to choose vaccine brand (28.9%), and fear of injection (24.2%) are reported to be vaccination impediments. Few reported that belief in natural remedies against COVID-19 (10%), cultural reasons (4.3%), religious reasons (3.8%), and refusal of family/ relatives (2.8%) contribute to their decision-making of getting inoculated.

Table 6:
Distribution of respondents according to their common concerns towards COVID-19 vaccination (n=211)

Variables	Frequency	Percentage	Rank
Side effects	175	82.9	1
Safety	156	73.9	2
Effectiveness	146	69.2	3
Lack of information	83	39.3	4
Freedom to choose vaccine brand	61	28.9	5
Fear to injection	51	24.2	6
Belief in natural remedy	21	10.0	7
Cultural reason	9	4.3	8
Religious reason	8	3.8	9
Refusal of family/ relatives	6	2.8	10

Correlational analysis between the profile of the respondents and their level of acceptance towards COVID-19 vaccination

The association between the respondents' profile, including their age, gender, most significant educational attainment, occupation, monthly family income, religious affiliation, presence of comorbidity, and level of acceptability of COVID-19 immunization, was assessed using a Chi-square test for independence. Table 7 illustrates that the respondents' level of acceptance towards COVID-19 vaccination is significantly correlated to their age, X2 (4, N=211) =23.55, p<.001; gender, X2 (2, N=211) =6.11, p=.047; highest educational attainment. X2 (4, N=211) =13.34, p=.010; occupation, X2 (4, N=211) =13.853, p=.008; monthly family income. X2 (10, N=211) =33.78, p<.001; religious affiliation, X2 (8, N=211) =29.14, p<.001; and presence of comorbidity, X2 (4, N=211) =14.17, p<.001, hence, the null hypotheses should be rejected. Likewise, age (w=0.334), monthly family income (w=0.380), and religious affiliation (w=0.355) have a medium effect on the said relationship while gender (w=0.170), highest educational attainment (w=0.251), occupation (w=0.256) and presence of comorbidity (w=0.259) have small effect to the acceptance level towards COVID-19 vaccination.

Table 7. Summary of Pearson-Chi Square and Likelihood Ratios, degrees of freedom, p-values, and effect sizes between the profile of the respondents and their level of acceptance to COVID-19 vaccination (n=211)

Profile of the respondents	X^2	Df	p-value	Effect size	Interpretation
Age	23.553	4	<0.001	0.334	Significant
Gender	6.107	2	0.047	0.170	Significant
Highest educational attainment	13.344	4	0.010	0.251	Significant
Occupation	13.853	4	0.008	0.256	Significant
Monthly family income	33.781*	10	<0.001	0.380	Significant
Religious affiliation	29.141*	8	<0.001	0.355	Significant
Presence of comorbidity	14.169	2	0.001	0.259	Significant

*Legend: * Likelihood ratio*

Comparative analysis on the level of acceptance to COVID-19 vaccination when grouped according to profile

This section compares the level of acceptance of the respondents towards COVID-19 vaccination when grouped according to their profile in terms of age, gender, highest educational attainment, occupation, monthly family income, religious affiliation, and comorbidity.

Level of acceptance to COVID-19 vaccination and age

Table 8 presents that out of 77 respondents aged 20-39 years old, 49% do not accept COVID-19 vaccination, but 9% highly accept. On the other hand, among 40-59 years old and 60 years old and above, the majority reported moderate acceptance (65%, 46%).

Table 8:
Distribution of respondents based on level of acceptance to COVID-19 vaccination and age (n=211)

		Level of acceptance to COVID-19 vaccination			Total
		Not accepted f(%)	Moderately accepted f(%)	Highly accepted f(%)	
Age	20-39 years old	38 (49.3)	32 (41.6)	7 (9)	77
	40-59 years old	19 (22.1)	56 (65.1)	11 (12.8)	86
	60 years old and above	12 (25)	22 (45.8)	14 (29.2)	48
Total		69	110	32	211

A Kruskal-Wallis H test in Table 9 showed that there was a statistically significant difference in the level of acceptance to COVID-19 vaccination among different age groups, X^2 (2)=15.468, p<.001, with a mean rank acceptance score of 86.79 for 20-39 years old, 113.81 for 40-59 years old and 122.83 for 60 years old and above. Moreover, 7% of the variability of mean rank scores is accounted for by age.

Table 9:
Kruskal-Wallis Test result for significant difference of level of acceptance based on age (n=211)

Group	N	Mean Rank	Kruskal-Wallis H	df	Asymp. Sig	Effect size
20-39 years old	77	86.79	15.468	2	<.001	0.073
40-59 years old	86	113.81				
60 years old and above	48	122.83				
Total	211					

Likewise, on comparison per pair, it can be observed that there was a significant difference in the level of acceptance of respondents aged 20-39 years old from 40-59 years old, X2 (1)=10.78, p=.001, and 60 years old and above, X2 (1)=10.796, p=.001. Nevertheless, the acceptance levels of 40-59 years old and 60 years old and above are comparable, X2 (1)=1.223, p=.269.

Table 10:
Post-hoc analysis on the acceptance level according to age group (n=211)

Group	Group	Kruskal-Wallis H	Df	Asymp. Sig	Effect size
20-39 years old	40-59 years old	10.776	1	.001	0.0665
20-39 years old	60 years old and above	10.796	1	.001	0.0871
40-59 years old	60 years old and above	1.223	1	.269	0.0092

Their access to social media may also influence the low acceptance of younger participants to COVID-19 vaccination. Zakar et al. (2021) reported that vaccine hesitancy or acceptability is also based on people's knowledge of vaccine benefits and the misinformation circulating on different social media platforms.

Level of acceptance to COVID-19 vaccination and sex

Table 11 illustrates that out of 89 male respondents, only 21% expressed high acceptance, while 53% have moderate acceptance of COVID-19 vaccination. Similarly, the number of female respondents who conveyed non-acceptance (38%) to COVID-19 vaccination is more significant than those who have high acceptance (11%).

Table 11:
Distribution of respondents based on level of acceptance to COVID-19 vaccination and gender (n=211)

		Level of acceptance to COVID-19 vaccination			Total
		Not accepted f(%)	Moderately accepted f(%)	Highly accepted f(%)	
Gender	Male	23 (25.8)	47 (52.8)	19 (21.3)	89
	Female	46 (37.7)	63 (51.6)	13 (10.7)	122
Total		69	110	32	211

A Kruskal-Wallis H test in Table 12 showed that there was a statistically significant difference in the level of acceptance to COVID-19 vaccination among male and female groups, X2 (1)=5.582, p=.018, with a mean rank acceptance score of 116.53 for male and 98.32 for female. Around 3% of the variability of mean rank scores is affected by gender.

Table 12:
Kruskal-Wallis Test result for significant difference of level of acceptance based on gender (n=211)

Group	N	Mean Rank	Kruskal - Wallis H	df	Asymp. Sig	Effect size
Male	89	116.53	5.582	1	.018	0.026
Female	122	98.32				
Total	211					

Level of acceptance to COVID-19 vaccination and highest educational attainment

Table 13 presents that out of 33 respondents who reached the elementary level, 33% have high acceptance of COVID-19 vaccination, while 42% have moderate acceptance. On the contrary, a more significant percentage of non-acceptance (36%) among respondents who attained high school level than those with high acceptance (17%). The same trend

occurred among respondents who reached college level, with 33% non-acceptance over 8% high acceptance scores.

Table 13:
Distribution of respondents based on level of acceptance to COVID-19 vaccination and educational attainment (n=211)

		Level of acceptance to COVID-19 vaccination			Total
		Not accepted f(%)	Moderately accepted f(%)	Highly accepted f(%)	
Educational attainment	Elementary level	8 (24.2)	14 (42.4)	11 (33.3)	33
	High school level	25 (35.7)	33 (47.1)	12 (17.1)	70
	College level	36 (33.3)	63 (58.3)	9 (8.3)	108
Total		69	110	32	211

A Kruskal-Wallis H test in Table 14 showed that there was no statistically significant difference in the level of acceptance to COVID-19 vaccination among groups of different highest educational attainment, X2 (2)=5.599, p=.061, with a mean rank acceptance score of 126.47 for the elementary level group, 104.71 for high school level group and 100.58 for the college-level group. Hence, the null hypothesis was not rejected at a 0.05 level of significance.

Table 14:
Kruskal-Wallis Test result for significant difference of level of acceptance based on educational attainment (n=211)

Group	N	Mean Rank	Kruskal-Wallis H	df	Asymp. Sig	Effect size
Elementary level	33	126.47	5.599	2	.061	0.027
High school level	70	104.71				
College level	108	100.58				
Total	211					

Although the present research found no statistical difference in the acceptance level for COVID-19 vaccination across different educational attainment, some studies affirmed that people who reached college level have higher acceptance than those with lower education (Marzo et al., 2022; Mesele, 2021). Higher educated populations generally possess better knowledge about the vaccines and vaccination process, which creates more heightened awareness regarding the risks and benefits of the vaccination (Heinemeier, Schmid-Küpke & Betsch, 2021 cited in Marzo et al., 2022). Additionally, they were more inclined to believe that vaccination convenience, health providers' advice, and costs of vaccines are essential for people to decide whether to receive COVID-19 vaccines (Marzo et al., 2022).

Level of acceptance to COVID-19 vaccination and occupation

Table 15 shows that though more than half of the employed group (51%) have moderate acceptance of COVID-19 vaccination, almost 40% of them expressed non-acceptance than those with high acceptance (9%). The same trend occurred among the self-employed group, with 62% moderate acceptance, 22% non-acceptance, and 16% high acceptance. Likewise, almost 40% of the unemployed group reported that they would not accept COVID-19 vaccination, slightly more significant than those who conveyed moderate (35%) and high (26%) acceptance.

Table 15:
Distribution of respondents based on level of acceptance to COVID-19 vaccination and occupation (n=211)

		Level of acceptance to COVID-19 vaccination			Total
		Not accepted f(%)	Moderately accepted f(%)	Highly accepted f(%)	
Occupation	Employed	34 (39.5)	44 (51.2)	8 (9.3)	86
	Self-employed	18 (22)	51 (62.2)	13 (15.8)	82
	Unemployed	17 (39.5)	15 (34.9)	11 (25.6)	43
Total		69	110	32	211

A Kruskal-Wallis H test in Table 16 showed that there was no statistically significant difference in the level of acceptance of COVID-19 vaccination among groups of different occupations. X2 (2)=5.738, p=.057, with a mean rank acceptance score of 95.72 for the employed group, 116.11 for the self-employed group, and 107.28 for the unemployed group; hence, the null hypothesis was not rejected at 0.05 level of significance.

Table 16:
Kruskal-Wallis Test result for significant difference of level of acceptance based on occupation (n=211)

Group	N	Mean Rank	Kruskal-Wallis H	df	Asymp. Sig	Effect size
Employed	86	95.72	5.738	2	.057	0.027
Self-employed	82	116.11				
Unemployed	43	107.28				
Total	211					

Although the present research noted no significant difference in the acceptance across occupation groups, Marzo et al. (2021) reported that unemployed participants were significantly more likely to express hesitancy in receiving COVID-19 vaccines than students and employed participants. It can be attributed to the limited access of the unemployed individuals to more information regarding COVID-19 vaccines. Subsequently, the fear of financial consequences for post-vaccination adverse reaction experiences was also one of the reasons why unemployed individuals tend to have low vaccination acceptance.

Level of acceptance to COVID-19 vaccination and monthly family income

Table 17 shows that the percentages of non-accepting and moderately accepting respondents towards COVID-19 vaccination under the less than Php5,000.00/month income earning group were close to each other with almost 48% and 45%, respectively. In contrast, the highly accepting respondents had the smallest percentage (7.8). Likewise, the

same trend occurred, with moderate acceptance getting the highest percentage followed by non-acceptance and least for high acceptance among other groups of different income brackets. It was also noted that no one under the >Php20,000.00/month income group responded with high acceptance of COVID-19 vaccination.

Table 17:
Distribution of respondents based on level of acceptance to COVID-19 vaccination and monthly family income (n=211)

		Level of acceptance to COVID-19 vaccination			Total
		Not accepted f(%)	Moderately accepted f(%)	Highly accepted f(%)	
Monthly family income	Less than Php5,000.00	46 (44.7)	49 (47.5)	8 (7.8)	103
	Php5,0000-10,000.00	8 (26.7)	14 (46.7)	8 (26.7)	30
	Php10,001-15,000.00	6 (16.7)	20 (55.5)	10 (27.8)	36
	Php15,001-20,000.00	2 (10.5)	11 (57.9)	6 (31.6)	19
	Php20,000-25,000.00	3 (23.1)	10 (76.9)	0	13
	Above Php25,000.00	4 (40)	6 (60)	0	10
Total		69	110	32	211

A Kruskal-Wallis H test in Table 18 showed that there was a statistically significant difference in level of acceptance to COVID-19 vaccination among groups of different monthly family income brackets, X2 (5)=23.953, p<.001, with a mean rank acceptance score of 90.04 for <Php5,000.00/month group, 119.57 for Php5,0000-10,000.00/month group, 129.31 for Php10,001-15,000.00/month group, 137.5 for Php15,001-20,000.00, 103.85 for Php20,000-25,000.00/month group and 88.7 for > Php25,000.00/month group. More than 11% of the variability of mean rank scores can be attributed to this variable.

Table 18:
Kruskal-Wallis Test result for significant difference of level of acceptance based on monthly family income (n=211)

Group	N	Mean Rank	Kruskal-Wallis H	df	Asymp. Sig	Effect size
Less than Php5,000.00	103	90.04	23.953	5	<.001	0.114
Php5,0000-10,000.00	30	119.57				
Php10,001-15,000.00	36	129.31				
Php15,001-20,000.00	19	137.50				
Php20,000-25,000.00	13	103.85				
Above Php25,000.00	10	88.70				
Total	211					

Post-hoc analysis shown in Table 19 indicated significant difference on the mean rank of <Php5,000.00/month income group from of mean ranks of Php5,000-10,000.00/month group, X2 (1)=6.14, p=.013; Php10,001-15,000.00/month group, X2 (1)=13.14, p<.001 and Php15,001-20,000.00/month group, X2 (1)=11.63, p=.001. Similarly, there was a substantial difference between the mean ranks of >Php25,000.00/month group and Php10,001-15,000.00/month group, X2 (1)=4.6, p=.032 and Php15,001-20,000.00, X2 (1)=5.7, p=.017. Similarly, the mean ranks of Php15,001-20,000.00/month group and Php20,000-25,000.00/month group were significantly different, X2 (1) =4.31, p=.038. Nevertheless, the acceptance level to COVID-19 vaccination of the rest of the groups were comparable to each other, p>0.05. Zakar et al. (2021) reported that people earning higher income are more likely to accept COVID-19 vaccination. On the other hand, Marzo et al. (2021) found that participants.

Table 19:
Post-hoc analysis on the acceptance level according to monthly family income (n=211)

Group	Group	Kruskal-Wallis H	Df	Asymp. Sig	Effect size
Less than Php5,000.00	Php5,0000-10,000.00	6.137	1	.013	0.046
Less than Php5,000.00	Php10,001-15,000.00	13.138	1	.000	0.095
Less than Php5,000.00	Php15,001-20,000.00	11.629	1	.001	0.096
Less than Php5,000.00	Php20,000-25,000.00	1.055	1	.304	0.009
Less than Php5,000.00	Above Php25,000.00	<.001	1	1	<.001
Php5,0000-10,000.00	Php10,001-15,000.00	.385	1	.535	0.006
Php5,0000-10,000.00	Php15,001-20,000.00	.975	1	.323	0.007
Php5,0000-10,000.00	Php20,000-25,000.00	.948	1	.330	0.007
Php5,0000-10,000.00	Above Php25,000.00	2.247	1	.134	0.003
Php10,001-15,000.00	Php15,001-20,000.00	.267	1	.605	0.005
Php10,001-15,000.00	Php20,000-25,000.00	2.865	1	.090	0.002
Php10,001-15,000.00	Above Php25,000.00	4.6	1	.032	0.102
Php15,001-20,000.00	Php20,000-25,000.00	4.307	1	.038	0.139
Php15,001-20,000.00	Above Php25,000.00	5.698	1	.017	0.203
Php20,000-25,000.00	Above Php25,000.00	.731	1	.392	0.033

Low and high family economic backgrounds were more likely to show uncertainty in receiving COVID-19 vaccines than those with medium family financial status. While adverse effects became the primary reason for vaccine hesitancy, the financial consequence of getting medical care was also a fear. In the Philippines, although PhilHealth, the country's health insurance system, provides a case rate package on COVID-19 vaccine-related hospitalization. However, there are still high out-of-pocket expenses that are being spent on the patient and the daily needs of the watcher as hospitals do not provide the latter's food.

Level of acceptance to COVID-19 vaccination and religious affiliation

Table 20 indicates that out of 144 Roman Catholics, majority reported moderate acceptance to COVID-19 vaccination (44%) followed by no acceptance (43%) while only 12% expressed high acceptance. For the 23 members of Iglesia ni Cristo, almost 61% had moderate acceptance and 30% had high acceptance similar with the 35 Born Again Christians of which 74% reported moderate acceptance and 14% high acceptance. Subsequently, among the seven Moslems, more than half expressed moderate acceptance (57%) and 29% high acceptance. The two Jehovah's Witness members conveyed moderate acceptance.

Table 20:
Distribution of respondents based on level of acceptance to COVID-19 vaccination and religious affiliation (n=211)

		Level of acceptance to COVID-19 vaccination			
		Not accepted f(%)	Moderately accepted f(%)	Highly accepted f(%)	Total
Religious affiliation	Roman Catholic	62 (43.1)	64 (44.4)	18 (12.5)	144
	Iglesia ni Cristo	2 (8.7)	14 (60.9)	7 (30.4)	23
	Born Again Christians	4 (11.4)	26 (74.3)	5 (14.3)	35
	Islam	1 (14.3)	4 (57.1)	2 (28.6)	7
	Jehovah's Witnesses	0	2 (100)	0	2
Total		69	110	32	211

A Kruskal-Wallis H test in Table 21 showed that there was a statistically significant difference in level of acceptance to COVID-19 vaccination among different religious groups, X2 (4)=19.388, p=.001, with a mean rank acceptance score of 94.84 for Roman Catholics, 138.33 for Iglesia ni Cristo, 124.41 for Born Again Christians, 132 for Moslems and 124.5 for members of Jehovah's Witnesses. Around 9% of variability of mean rank scores can be attributed to religious affiliation.

Table 21:
Kruskal-Wallis Test result for significant difference of the level of acceptance based on religious affiliation (n=211)

Group	N	Mean Rank	Kruskal - Wallis H	df	Asymp. Sig	Effect size
Roman Catholic	144	94.84	19.388	4	.001	0.092
Iglesia ni Cristo	23	138.33				
Born Again Christians	35	124.41				
Islam	7	132				
Jehovah's Witnesses	2	124.5				
Total	211					

The post-doc analysis shown in Table 22 indicated a significant difference in the Roman Catholic group's mean from the mean ranks of Iglesia ni Cristo, X2 (1)=11.443, p=.001 and Born Again Christians, X2 (1)=8.425, p=.004. Subsequently, the acceptance level for COVID-19 vaccination of the rest of the groups was comparable to each other, p>0.05.

Table 22:
Post-hoc analysis on the acceptance level according to religious affiliation (n=211)

Group	Group	Kruskal-Wallis H	Df	Asymp. Sig	Effect size
Roman Catholic	Iglesia ni Cristo	11.443	1	.001	0.069
Roman Catholic	Born Again Christians	8.425	1	.004	0.047
Roman Catholic	Islam	2.811	1	.094	0.019
Roman Catholic	Jehovah's Witnesses	.662	1	.416	0.004
Iglesia ni Cristo	Born Again Christians	1.713	1	.191	0.030
Iglesia ni Cristo	Islam	.064	1	.800	0.002
Iglesia ni Cristo	Jehovah's Witnesses	.350	1	.554	0.015
Born Again Christians	Islam	.283	1	.595	0.007
Born Again Christians	Jehovah's Witnesses	.008	1	.929	0.0002x
Islam	Jehovah's Witnesses	.122	1	.726	0.015

In the Philippines, where the majority are Roman Catholics, vaccine hesitancy can be attributed to the value of the Filipinos to life where they are scared of the possible adverse reactions of the COVID-19 vaccine, especially since they were developed earlier than other vaccines. The possible damaging outcome of the COVID-19 vaccines to developing babies in the womb (Skejfte et al., 2021) and conspiracy beliefs regarding the COVID-19 vaccine might cause infertility and miscarriages (Murawenhema, 2021). Jolley and Douglas (2014) said that Anti-vaccine conspiracy theories appear to lower vaccination intentions by instilling excessive fears about vaccine hazards and raising emotions of powerlessness, disappointment, and mistrust of authority.

Level of acceptance to COVID-19 vaccination and presence of comorbidity

Table 23 shows that out of 115 respondents without comorbidity, only around 8% reported high acceptance of COVID-19 vaccination, and almost 41% voiced vaccine hesitancy; however, 51% expressed moderate acceptance. Further, although there was almost 23% non-acceptance, a more significant percentage of acceptance was seen among

respondents with comorbidity, with almost 24% high acceptance and 53% moderate acceptance.

Table 23:
Distribution of respondents based on level of acceptance to COVID-19 vaccination and presence of comorbidity (n=211)

		Level of acceptance to COVID-19 vaccination			
		Not accepted f(%)	Moderately accepted f(%)	Highly accepted f(%)	Total
Presence of comorbidity	Without comorbidity	47 (40.9)	59 (51.3)	9 (7.8)	115
	With comorbidity	22 (22.9)	51 (53.1)	23 (23.9)	96
Total		69	110	32	211

A Kruskal-Wallis H test in Table 24 showed a statistically significant difference in the level of acceptance of COVID-19 vaccination among two groups, X2 (1)=12.967, p<.001, with a mean rank acceptance score of 93.48 for without comorbidity and 121 for with comorbidity. The variability of the mean rank scores was affected by comorbidity by 6%.

Table 24:
Kruskal-Wallis Test result for significant difference in the level of acceptance-based presence of comorbidity (n=211)

Group	N	Mean Rank	Kruskal-Wallis H	df	Asymp. Sig	Effect size
Without comorbidity	115	93.48	12.967	1	<.001	0.062
With comorbidity	96	121				
Total	211					

On the contrary, the study of Zakar et al. (2021) found that people without a history of chronic disease favored vaccination over those who did. The presence of any medical issues in the past was linked to vaccination status. Persons who have any form of allergy (food, medicine, or vaccination) are more likely to develop allergies to other drugs and vaccinations than people who do not have allergies. Individuals with higher risk appraisals of the perceived threat and more significant worry were more willing to get vaccinated (Southwell & McCormack, 2020). The vaccine's protective efficacy drew the people to increased vaccine uptake (Feng Yang et al., 2021).

Table 24. PROPOSED HEALTH PROMOTION PROGRAM
Goals:

1. To increase the number of willing eligible individuals to participate in the COVID-19 vaccine immunization program.
2. To get at least 85% of the eligible population to get vaccinated, thus achieving herd immunity.

Objective	Activities	Person/ Agency in-Charge	Expected outcome	Performance indicator/s
To allay the fear of the public to vaccine side-effects and adverse reactions by carefully lay-outing, implementing, monitoring, and evaluating COVID-19 promotion activities.	Creation of a team who will be fully in-charge in active information dissemination and demand generation	LGU, MHO, DOH-HRH, PIO	A fully functional a COVID-19 Bakuna Promotion Team	Special order/ list of personnel under the COVID-19 Bakuna Promotion Team
	COVID-19 vaccine Caravan in the barangays wherein tarpaulins will be posted in conspicuous areas	LGU, MHO, DOH-HRH, PIO, Barangay councils	COVID-19 vaccination information materials are posted in front of schools, barangay halls, barangay health stations, basketball courts, nearby borders, and public spots in interior areas	At least 10 COVID-19 vaccine information materials are posted in every barangay
	Conduct small talks in different sitios while adhering to the minimum public health standards	RHU, DOH-HRH, BHWs	Small talks attended by 20 heads per session, especially among 4Ps beneficiaries	Documentation of the activity

Objective	Activities	Person/ Agency in-Charge	Expected outcome	Performance indicator/s
	Make the most of social media tools to spread active information. Creation of Facebook page, Twitter account, "Lingayen Health Information Desk."	LGU, PIO, DOH	Information regarding COVID-19 vaccination in terms of risks, benefits, side effects, vaccination schedule, and venue to be posted on social media	An active Facebook page and Twitter account
	Conduct follow-up check-ups among vaccinated individuals and document their post-vaccination experience to be posted on social media as testimonials	RHU, DOH-HRH, PIO	Vaccinated individuals will be evaluated up to 1-week post-vaccination for their experience.	Precise testimonials and postings on social media about the post-vaccination experience

Objective	Activities	Person/ Agency in-Charge	Expected outcome	Performance indicator/s
To properly eligibility of individuals for COVID-19 vaccination and determine their risk level.	Conduct a preliminary assessment of individuals with health risks by administering assessment forms asking about their demographic profile, health conditions, and medical history. Master listing of priority individuals for vaccination	MHO, DOH-HRH, BHWs	All individuals will be assessed for their risk level and be placed in their corresponding priority group. Individuals with comorbidities will be advised to secure medical certificate/ clearance from their healthcare providers.	Masterlist of eligible vaccinees
To establish an efficient and convenient vaccination process	Meeting with the health authorities regarding the implementation of the COVID-19 Resbakuna action plan in vaccination sites from scheduling, registration, screening, physical assessment, counseling and informed consent, vaccination proper and post-vaccination monitoring	MHO, DMO, DOH-HRH, LGU	All eligible vaccinees will have a comfortable vaccination experience.	Fully-equipped and functional vaccination sites with enough workforce to cater to all eligible vaccinees
To establish a functional feedback mechanism regarding COVID-19 vaccination.	Creation of hotline or social media accounts that will serve as an avenue for public queries, feedback, and concerns	MHO, DOH-HRH, and municipal media affairs	Lingayen will have a functional and 24/7 operating hotline or social media account to entertain public queries, feedback, and concerns.	An active social media account and/or 24/7 hotline

To establish a smooth referral system for individuals with experience. adverse reactions	Establish linkages among government and private hospitals for referral of post-COVID-19-vaccination- related cases that require hospitalization	MHO, DOH-DMO, and Chief of hospitals	There will be a fast referral system between Lingayen Health Office and Lingayen District Hospital, Region 1 Medical Center, and nearby private hospitals	Memorandum of Agreement/ Understanding between Lingayen Health Office and Lingayen District Hospital, Region 1 Medical Center, and other nearby private hospitals
To ensure low health expenditure of post-COVID-19-vaccination-related cases.	To efficiently implement Universal Health Care Law wherein all individuals will be automatically eligible for PhilHealth membership and, availment of benefits	DOH, hospitals, PhilHealth	All post-COVID-19-vaccination-related hospitalization will enjoy the "No balance billing" policy in the government hospitals and a sufficient case rate package in private hospitals.	Low hospitalization fees

Objective	Activities	Person/ Agency in-Charge	Expected outcome	Performance indicator/s
Capacity building among barangay health workers (BHWs) and other stakeholders	✔ Conduct seminars, training, and webinars regarding COVID-19 vaccination ✔ Coordinate with the LGU or barangay councils on accessibility of audio-visual presentation materials and internet connection during webinars	MHO, DOH-HRH, barangay officials	The BHWs and other stakeholders have enough knowledge regarding COVID-19 vaccination. In this manner, it will boost their confidence in answering basic public queries.	Documentation of seminars, webinars Presence of AVP logistics and stable internet connection in the barangay
To create a reward system among vaccinated individuals/ families	To provide incentives among vaccinated individuals to encourage those who are still hesitant (i.e., cash, grocery items)	LGU	Increase of willing eligible vaccinees	Masterlist of willing eligible vaccinees Accomplished receiving forms of the incentive

IV. CONCLUSION AND RECOMMENDATION

This chapter discusses the findings summary, generated conclusions based on the results, and the intended recommendations of the study.

Conclusion

Based on the findings, the study concludes the following:

1. The group was dominated by mid-adults, female, with good educational background and employed but are earning below the minimum wage, Roman Catholics and without comorbidity. Healthcare workers are the primary source of information regarding the COVID-19 vaccine.
2. The respondents, in general, have moderate acceptance of COVID-19 vaccination.
3. Vaccine side effects, safety, and effectiveness were the respondents' main concerns regarding COVID-19 vaccination.
4. The respondents' level of acceptance towards COVID-19 vaccination is significantly correlated to their age, gender, highest educational attainment, occupation, monthly family income, religious affiliation, and presence of comorbidity.
5. There is a statistically significant difference in level of acceptance of the respondents when grouped according to age, gender, monthly income, religious affiliation, and comorbidity status. Likewise,

regardless of the highest educational attainment and occupation, the acceptance level of the respondents is comparable to each other.

Recommendations

Based on those as mentioned above, the study, therefore, recommends the following:

1. In cooperation with the Department of Health and Public Information Office, the Municipal Health Office of Lingayen conducts an intensive information dissemination campaign regarding the COVID-19 Vaccine Immunization Program using the action plan created out of this study among the target population in the area.
2. For the Municipal Health Office of Lingayen, in cooperation with the Department of Health to strengthen the capacity and capability of the barangay health workers through training, seminars, and webinars for demand generation.
3. For the Local Government Unit of Lingayen to create a systematic mechanism of master listing and registration of eligible individuals in favor of COVID-19 vaccination and those who expressed refusal.
4. For the future researchers to conduct parallel study by either involving a larger sample size or using other research designs such as mixed-method to substantiate the study's quantitative findings further.

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