Awareness and Willingness on COVID-19 Vaccination of Third-Year Medical Technology Students

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Abstract: - Only little is known about the Coronavirus disease at the start of its discovery. Viral outbreaks occurred from one place to another, which facilitated a rapid transmission of the infection resulting in a pandemic. This public health emergency prompted scientists to start formulating vaccines that are very effective as a preventive intervention against the spread of the coronavirus disease. However, the evident worldwide uncertainty towards vaccines proved to be a key challenge toward a successful COVID-19 vaccine uptake. This study evaluates various vaccination-related factors that are highly significant in recognizing the facets that affect the public's awareness and willingness toward COVID-19 vaccination. Using a purposive sampling approach, a quantitative descriptive-correlational study was conducted among third-year medical technology students for the academic year 2021-2022 from a higher education institution in Manila. Cochran's Formula generated a sample size of 93, but for data saturation, 96 participants were included in the study. A descriptive statistical test, Spearman's rank-order correlation, and Cronbach's Alpha reliability test was applied to display the distribution and variability of responses, the correlation of the awareness of the participants on COVID-19 vaccine availability and their willingness to vaccination, and the measurement of reliability and consistency of the responses. The results showed that the participants had a high level of awareness regarding the COVID-19 vaccination since most of the participants answered the fact-based questions correctly. Various factors that affect the willingness of the participants are also extensively assessed. The results showed that most participants are still willing to get vaccinated regardless of the factors that influence their decision. Overall, there is a significant weak correlation between the awareness and willingness of the participants to receive the COVID-19 vaccine. This study provides a timely assessment of awareness and willingness regarding COVID-19 vaccination and factors affecting vaccine uptake among third-year medical technology students.

Key Words— ***COVID-19, Level of Awareness, Vaccination-Related Factors, Vaccines, Vaccine Uptake, and Willingness.***

I. INTRODUCTION

1.1 Background of the Study

The Coronavirus disease 2019, commonly known as COVID-19, is a respiratory tract infection caused by the new strain of coronavirus called severe acute respiratory syndrome coronavirus 2 or SARS-CoV-2. The first case of COVID-19 was reported in Wuhan, China, in December 2019. The disease was quick to spread across many parts of the world and was declared a pandemic by the World Health Organization (WHO) on March 11, 2020 (Kandola, 2020). In the Philippines, the first case of COVID-19 was reported by the Department of Health (DOH) on January 20, 2020, and the first local transmission was reported on March 7 (WHO, 2021). According to WHO, as of August 27, 2021, there have been 214,468,601 confirmed cases and 4,470,969 deaths of COVID-19 patients all over the world.

The WHO is joining hands with the DOH in response to the growing number of COVID-19 cases in the country (WHO,

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2021). Best practices were put into action to minimize the spread of disease in the country. The people were instructed to practice minimum health standard measures such as wearing face masks and face shields and social distancing (Bautista Jr. et al., 2021). However, despite the country's best efforts and interventions, there was still a gradual increase in COVID-19 cases and deaths (Cervantes, 2020). According to WHO (2020), the need for accessible, safe, and effective vaccines is essential to end the COVID-19 pandemic. Due to the urgency of the need for vaccination, WHO has worked with various partners in developing, manufacturing, and distributing safe and effective vaccines. As early as December 2020, the first mass vaccination program started, and there are now several vaccines in use. As of August 24, 2021, there have already been a total of 4,953,887,422 vaccines administered all over the world as reported by WHO.

Since the mass administration of vaccines, the global burden of illness and death due to COVID-19 has reduced. As vaccines are already readily available to the public, this does not guarantee the continuous decline in COVID-19 cases and deaths. Herd immunity or population immunity, the protection or immunity of a population against infectious disease through vaccination, must be achieved against COVID-19. This can only be done if a significant proportion of the population is vaccinated. The overall spread of the virus in the whole community would be contained through herd immunity, flattening the pandemic curve (WHO, 2020). However, delays in the progress of vaccine administration to the public can still be affected by various factors such as public confidence and refusals or hesitancies (Kabamba Nzaji et al., 2020).

In the Philippines, the vaccination against COVID-19 began in March 2021 as the country intends to have a total of 58 million people vaccinated against COVID-19 by the end of the year. There are already about 19.75 million people that have received the first dose of COVID-19 as of August 31, 2021, and around 13.96 have completed the second dose of the vaccine (Statista Research Department, 2021). The deployment of vaccination in the Philippines is determined through a sectoral approach. This means that the priority group, which includes all frontline healthcare workers, must be vaccinated first, followed by the succeeding priority groups. The distribution of vaccines in different areas in the country is contingent on the burden of COVID-19 cases, which is determined by the number of active cases in the past four weeks and the attack rate per 100,000 in the past four weeks (DOH, 2021).

Furthermore, the required age for COVID-19 vaccination is any healthy individual between 18 years old to 59 years old. Most COVID vaccine pharmaceuticals follow this rule like Sinovac Biotech, except for Oxford-AstraZeneca, which allows the vaccination of senior citizens. To undergo COVID-19 vaccination, one must register and sign a vaccination program consent form (DOH, 2021). Informed consent is considered an essential requirement so that the healthcare provider that will administer the vaccine and the patient share a common knowledge that the vaccine receiver is willing to be vaccinated. These waivers protect the patient because upon signing one, it means that the healthcare provider has successfully imparted essential information regarding the vaccination (American Cancer Society, 2019).

To reduce mortality and preserve a good functioning healthcare system in the Philippines, the government has issued the prioritization groups of vaccine administration. Priority Eligible A is the people who are working as the first line of defense against the virus. This consists of healthcare workers, senior citizens, uniformed personnel, patients with comorbidities, and the indigent population. It is needed for frontline workers to be vaccinated first for them to continuously do their duties as the ongoing pandemic infected cases rise each day. For the elderly and other vulnerable people included in Priority Eligible A, they are required to be prioritized first on the sense and principle of equity. Priority Eligible B is composed of government workers, Overseas Filipino Workers, and other essential workers. Priority Eligible C is composed of the public who are not mentioned in the former eligibility groups (DOH, 2021).

Those individuals with underlying diseases who want to get vaccinated are required to bring proof of comorbidity. Documentations that are considered valid and truthful are medical certificates, medicine prescriptions, hospital records such as discharge forms or surgical forms, or any other proof that an individual is considered as a part of the Priority Group A3 (DOH, 2021). Usually, patients with comorbidity are eligible to undergo COVID-19 vaccination but as a safety precaution, patients suffering from hematologic diseases are also required to consult their respective doctors. These types of diseases are characterized as blood disorders, so it is critical that these people belonging to the Special Interest Group know what their best options are so that they can personally decide whether to get vaccinated or not (Philippine College of Physicians, 2021). Although studies are yet to be made on these cases,

healthcare institutions are arguing that the potential benefits of these vaccines greatly outweigh the potential risks they can cause (AHEAD, 2021).

Moreover, it is a necessity for the public to observe cohesion in terms of vaccination. If an individual has already received his first dose of the vaccine, the second dose that will be administered must also be from the same brand. Co-administration of other vaccines is not recommended and is highly discouraged as it may compromise the patient's health (DOH, 2021).

For the country to get back on track, everyone is highly encouraged to undergo vaccination in the Philippines to achieve herd immunity. Although vaccination is not required for the workplace, some universities that produce future health workers require their health allied students to get vaccinated to start the implementation of limited face-to-face classes as their courses are mostly laboratory and skill-based. The memorandum issued by the Commission on Higher Education (CHED) states the implementation of the required vaccination of students in their internship year. With this, the researchers intended to determine the level of awareness and willingness of students who were required to receive vaccination before doing their internship. This was why the target participants of this study are third-year medical technology students at a particular Higher Education Institution (HEI). This study will be of great significance in implementing face-to-face classes and improving education among third-year medical technology students who had their internship in the following academic year and therefore were subjected to the required vaccination. The primary purpose of this study was to determine the awareness of third-year students about the COVID-19 pandemic and its vaccines and their willingness to get vaccinated.

Many studies have looked at the perception and acceptance of the COVID-19 vaccine all around the world. Researchers have studied how the public has differing opinions on newly produced vaccines that stimulate antibodies to reproduce so that the body will have immunity against various diseases. However, there has not been a lot of attention given to why the public reacted this way. Although there are similar studies to our research, most of the scope of their population consists of barangays, cities, and whole schools, which means that other populations are under-researched.

In particular, although many types of research about COVID-19 were emerging in our institution, none of these studies solely emphasized certain groups of students. Since this type of research was the first in our institution, studying the awareness of third-year students on COVID-19 vaccines helped us understand their willingness to receive the vaccination.

1.2 Statement of the Problem

The rise of social media platforms paved the way for faster information dissemination, including fake news and conspiracies. Unfortunately, the information regarding the COVID-19 pandemic and vaccines were also negatively affected by this. The widespread misinformation regarding COVID-19 vaccines affected the awareness and willingness of third-year medical technology students regarding its inoculation.

In line with the CHED memorandum requiring the vaccination of fourth-year internship students in preparation for the limited face-to-face classes, third-year medical technology students were to be vaccinated before the next academic year. This study aimed to determine the awareness and willingness of third-year medical technology students regarding COVID-19 vaccination.

1. What is the level of awareness of the third-year medical technology students regarding COVID-19 vaccination?
2. How willing are the third-year medical technology students to receive the COVID-19 vaccine?
3. What are the factors affecting the willingness of third-year medical technology students to receive the COVID-19 vaccine in terms of:
    a. Individual and Group influences
    b. Vaccine-specific influences
4. Does the awareness of third-year medical technology students regarding COVID-19 vaccination correlate to their willingness to receive the vaccine?

1.3 Hypotheses of the Study

The researchers proposed the following hypotheses:

H0: There is no significant correlation between the awareness of third-year medical technology students regarding COVID-19 vaccination and their willingness to receive the vaccine.

H1: There is a significant correlation between the awareness of third-year medical technology students regarding COVID-19 vaccination and their willingness to receive the vaccine.

1.4 Significance of the Study

The Commission on Higher Education (CHED) approved 24 health education institutions (HEIs) to conduct limited on-site classes for allied-health degree programs in the second semester of the A.Y. 2020-2021. This allowed students to gain significant learning outcomes on specialized laboratory courses and hospital-based clinical clerkship/internship/practicum. CHED released a memorandum requiring all student clerks and interns to be a part of the sub-priority groups for COVID-19 vaccination, given by local government units (LGUs).

This study will give data about the vaccinated and unvaccinated third-year medical technology students' awareness of the COVID-19 vaccination and their willingness to be vaccinated. The results of the study will contribute notably to the following:

1.4.1 To Educational institutions/Clinical Instructors/Professors/ Educators:

The results of the study will be of great relevance as the information gathered could enable them to determine the common insight of third-year medical technology students who are required to be inoculated with the COVID-19 vaccine. Therefore, it can help plan the implementation of vaccination programs for medical technology education and training in the new learning curriculum.

1.4.2 To Concerned Faculties/Organizations:

The data collected can be utilized to improve the implementation of the limited face-to-face program during the COVID-19 pandemic.

1.4.3 To Third-Year Medical Technology Students/Incoming Interns:

This study will give data on peer-based knowledge of third-year medical technology students, raise awareness on COVID-19 vaccination, help students adapt to the need for inoculation before the internship, and encourage them to be vaccinated willingly.

1.4.4 To Future Researchers:

This may also provide an overview of the third-year medical technology students' awareness and willingness regarding COVID-19 vaccination that can be utilized for future research.

1.5 Scope and Limitations

The scope of the study was the awareness and willingness of the third-year medical technology students from a Higher Education Institution (HEI), regarding COVID-19 vaccination. All available COVID-19 vaccines in the Philippines during the third quarter of 2021 were in the study. Dissemination of questionnaire and data collection were conducted and gathered through an online survey using Google forms and Google sheets, respectively.

The study was limited to the participants who are third-year medical technology students enrolled in a Higher Education Institution (HEI). First-year, second-year, and fourth-year medical technology students were not included in the study. Each local government in the Philippines regulated the vaccination process and the type of vaccine administered and therefore not included within the scope of this research. Only the participants' awareness and willingness to COVID-19 vaccination were measured. The questionnaire for the survey was only accessible and available for the email addresses provided by the university. Platform-wise, the study was done online.

The study's inclusion criteria were current third-year medical technology students, incoming interns for A.Y. 2022-2023, vaccinated and unvaccinated. The exclusion criteria were other year levels of medical technology students, not yet or currently interns, and the status of acquiring the COVID-19 vaccine booster shots. A participant was allowed to withdraw from participating in the study if they chose to.

II. LITERATURE

2.1 Review of Related Literature

2.1.1. The COVID-19 Pandemic

People worldwide are currently affected by COVID-19; it is the fifth pandemic after the 1918 influenza pandemic. Since late December 2019, we can trace the first report and subsequent outbreak from a cluster of unique human pneumonia cases in Wuhan, China. The earliest beginning of symptoms of COVID-19 was in December 2019. The World Health Organization (WHO) named the new virus the 2019 novel coronavirus (2019-nCoV) on January 12, 2020, before naming it coronavirus disease 2019 (COVID-19) on February 12, 2020. Based on phylogeny, taxonomy, and established procedure, the International Committee on Taxonomy of Viruses (ICTV) formally classified the virus as SARS-CoV-2. COVID-19 has evolved for four months since it first appeared in China, and it

has quickly expanded to other countries around the world, posing a global threat (Liu et al., 2020).

The possible symptoms of COVID-19 include fever, cough, and shortness of breath. Infection of COVID-19 can lead to pneumonia or respiratory problems in more complex situations. The disease might be lethal in rare cases. It has symptoms that are comparable to the flu (influenza) or a common cold, which are more common. COVID-19 can spread through direct contact with an infected person's respiratory droplets produced by coughing and sneezing. Individuals can potentially acquire the virus by touching infected surfaces and touching their faces. The virus can survive and live for several hours on surfaces but can be killed by primary disinfectants (WHO, 2020).

On the 31st of December 2019, the first case of the Coronavirus SARS-CoV-2 was first reported in Wuhan, China (WHO, 2021). After a few days, the virus began to spread worldwide. A huge surge of positive cases prompted nations to begin implementing lockdowns and strict protocols to contain the virus. Countries started halting international travel, closing harbors and piers, and mass layoffs. Years have passed since the total lockdown and people are now starting to revive the usual social gatherings and businesses started re-opening, which contributed to another spike of positive cases and deaths (Bloomberg, 2021). Along with this, various pharmaceuticals started developing vaccines that can prevent severe outcomes when infected with the virus. As of September 3, 2021, there are approximately 219 million cases, 195 million recoveries, and 4.55 million deaths (Statista, 2021). Currently, there are 5.3 billion doses given, making 2.1 billion people vaccinated globally. Looking at cases per capita, the U.S and Canada have 46, the Middle East and Europe have 17, Latin America has 10, Asia-Pacific has 4, and Africa has 2 (The New York Times, 2021). Various kinds of different kinds of coronavirus variants are slowly emerging. Countries like Iran, Israel, and the United States are ones where variant cases are more prominent, while India, Indonesia, and Brazil have a fluctuation in these kinds of cases. As of now, scientists do not have a theory on this kind of phenomenon (The New York Times, 2021).

The WHO's group of scientists from the WHO Virus Evolution Working Group, the WHO COVID-19 reference laboratory network, representatives from GISAID, Nextstrain, Pango, and more experts in virological, microbial nomenclature, and communication from several countries and agencies, have been assigned to establish a nomenclature system for naming and tracking SARS-CoV-2 genetic lineages (WHO, 2021).

Since January 2020, the WHO has been monitoring and assessing the evolution of SARS-CoV-2 and have prompted the division of variants into two classes: Variants of Interest (VOIs) and Variants of Concern (VOCs). In the United States, aside from the two earlier mentioned classifications, they also have a separate class for Variant of High Consequence (CDC, 2021).

Under the category of VOI, a SARS-CoV-2 variant is being observed for genetic markers that could be a factor to affect the virus characteristics such as changes to receptor binding, reduced neutralization by antibodies generated against previous infection or vaccination, reduced efficacy of treatments, potential diagnostic impact, or predicted increase in transmissibility or disease severity (CDC, 2021). Provided that there is a recorded community transmission from multiple countries with an increasing proportion of prevalence and cases over time or other apparent epidemiological impacts that suggest an emerging risk to global public health, a variant will be labeled as a VOI (WHO, 2021).

Meanwhile, VOCs are variants that are considered to be VOIs, and through a comparative assessment, have been observed to have evidence of an increase in transmissibility, increase in virulence, and create failure of available diagnostics, vaccines, therapeutics, and social measures (WHO, 2021).

The Alpha variant (Pango lineage: B.1.1.7) that was first documented in the United Kingdom, has approximately 50% increased transmission compared to the first documented strain of SARS-CoV-2 (Davies et al., 2021). It is reported to spread easily and has a possibility of increased risk of hospitalization and death (Sinnovic, 2021).

The Beta variant (Pango lineages: B.1.351, B.1.351.2, B.1.351.3) also has an estimated 50% increase in transmission compared to other variants and was said to reduce the effectiveness of the combination of Bamlanivimab and Etesevimab monoclonal antibody medications and the antibodies generated by a previous COVID-19 infection or COVID-19 vaccine (Anti-SARS-CoV-2 Monoclonal Antibodies, 2022; CDC, 2021; Sinnovic, 2021).

The Gamma variant (Pango lineages: P.1, P.1.1, P.1.2) was reported to decrease the susceptibility to some monoclonal antibody treatments and reduce neutralization by convalescent and post-vaccination sera (Wang et al., 2021).

Lastly, the Delta variant (Pango lineages: B.1.617.2, AY.1, AY.2, AY.3, AY.4, AY.5, AY.6, AY.7, AY.8, AY.9, AY.10, AY.11, AY.12) has spread faster than other variants and may lead to more serious cases compared to other variants (CDC,

2021; CDC, 2022). Similar to the former variants discussed, the Delta variant has the potential to reduce the effectiveness of some emergency use authorization (EUA) monoclonal antibody medications and reduce the neutralization of antibodies generated post-sera (Deng et al., 2021) (U.S. Food and Drug Administration, 2021).

Moreover, the third classification, the Variant of High Consequence, is for variants that have clear evidence of reducing the effectiveness of medical countermeasures (MCMs) relative to previously circulating variants (CDC, 2021).

Continuous monitoring and assessment of SARS-CoV-2 are significant in reducing transmission with the help of established and proven disease control methods/measures.

On 4 September 2020, about a year ago, most vaccines were still under Phase 3 trial. During this time, WHO reported 26,121,999 cases and 864,618 deaths around the world. By December 2020, over 4 million new COVID-19 cases and 72 000 new deaths were reported. This brings the cumulative numbers to over 79 million reported cases and over 1.7 million deaths globally since the start of the pandemic until the end of 2020.

The most recent report from WHO (August 23-19, 2021) showed 4.4 million new cases and just over 67,000 deaths. The Eastern Mediterranean and Western Pacific Regions had an increase in the number of weekly deaths, 9% and 16%, respectively, while the South-East Asia Region reported the largest decrease (20%). The cumulative number of cases reported globally is now nearly 216 million and the cumulative number of deaths is just under 4.5 million (WHO, 2021).

The Department of Health confirmed on January 30, 2020, that a female Chinese patient confined in San Lazaro Hospital in Metro Manila, who had been under investigation for suspected coronavirus infection, is positive for COVID-19, then referred to as the novel coronavirus (2019-nCoV). After detecting SARS-CoV-2 viral RNA on the initial swabs through PCR, the female patient was identified as the first case of COVID-19 in the Philippines. The patient arrived in the country on January 21, 2020, from Hong Kong, and sought consultation on January 25, 2020, after experiencing a mild cough. After her symptoms resolved, she was discharged from the hospital. Accompanying the female patient is a 44-year-old male who complained of a fever, cough, and chills. He was given intravenous antibiotics to treat community-acquired pneumonia, but his condition worsened and he needed to be intubated. On January 31, SARS-CoV-2 viral RNA was detected by PCR on the initial swabs, and he was identified as the Philippines' second confirmed COVID-19 infection. On February 1, the patient's condition deteriorated, and after a cardiac arrest, he could not be revived. As a result, he was confirmed as the first COVID-19 death to occur outside of China (Edrada, 2020).

The first local transmission in the Philippines was reported on March 07, 2020, by the DOH. A 62-year-old man who has no history of travel outside the Philippines was tested positive for COVID-19. The said case urged President Rodrigo Duterte to sign Proclamation no. 922 on March 08, 2020, which places the Philippines in a state of a public health emergency (Official Gazette, 2020). Furthermore, the President imposed community quarantine in Metro Manila on March 12, 2020. Since March 15, 2020, national and local governments in the Philippines have been imposing community quarantines to alleviate the spread of the infection (Presidential Communications Operations Office, 2020). According to the COVID-19 tracker of the DOH, since the first case was reported in January of 2020, there have been more than 2 million cases of COVID-19 infection in the Philippines. This places the Philippines in second place behind Indonesia, with the most reported cases in Southeast Asia (SEA). Around 1.84 million from this have already recovered from the infection, while a total of 33, 680 deaths have been reported. There are currently 146, 510 active cases in the country, and just last August 30, 2021, the Philippines hit a record-high with 22, 366 new COVID-19 reported cases in one day.

2.2 COVID-19 Vaccination in the Philippines

In the Philippines, a sectoral approach is utilized for the deployment of COVID-19 vaccines all over the country. Like several countries such as South Africa and India, the Philippines have also determined specific priority groups. The priority eligible group A includes all frontline health workers, who must be vaccinated first before priority eligible groups B and C. Vaccine deployment is based on the delivery of vaccines in the country. Since continuous delivery of vaccines is not certain, the distribution of vaccines in different areas in the country is based on the burden of COVID-19 cases. The indicators for the determination of areas with high burden of COVID-19 cases are the number of active cases in the recent four weeks and the attack rate per 100,000 in the recent four weeks. The National Immunization Technical Advisory Group

(NITAG) will be determining the burden of COVID-19 cases monthly, and based on their review, the priority areas by region will be selected (DOH, 2021).

The nationwide implementation of COVID-19 vaccination is conducted in three phases: the pre-implementation phase, implementation phase, and post-implementation phase. The pre-implementation phase is the preparation for the actual vaccination, which includes identification of vaccine and eligible population, identification of simulation areas, master listing, screening, registration, and vaccine allocation and distribution. The implementation phase is the actual administration of vaccines. The activities included in this phase are vaccine administration and post-authorization surveillance (DOH, 2021).

The implementing units used in the country are medical centers, hospitals, infirmaries, rural health units, government health facilities, and private clinics. In the vaccination process, recipients must first pre-register to be provided with the date and time of their vaccination. They will then be provided with an immunization card with a QR code that they will bring to the vaccination site and a valid government-issued ID for a smooth implementation of vaccination. The vaccination site has six areas namely, the waiting area, registration area, pre-vaccination counseling and final consent, screening, vaccination, and post-vaccination monitoring and surveillance. The standard protocol shall be followed by the implementing units for a safe and efficient process. The recipient must wait in the waiting area following social distancing, present his/her immunization card with a QR code to the registration area for the profile recording through a computer system. Then, the recipient must proceed to the screening area for history taking and physical examination to verify his/her eligibility prior to the actual administration of the vaccine. Adverse reactions shall be observed every 15 minutes within 30 minutes to one hour at the post-vaccination area. (DOH, 2021).

2.3 COVID-19 Vaccines Available in the Philippines

As of August 27, 2021, the McGill COVID-19 Vaccine Tracker Team listed 9 COVID-19 vaccines that have been issued a EUA approval by the Philippine Food and Drug Administration (FDA) for use in the Philippines. The vaccines are Pfizer, Moderna, Sputnik Light, Sputnik V, Janssen, AstraZeneca, Covaxin, Sinopharm, and CoronaVac. According to the WHO (2021), a vaccine can be designed in one of three ways: whether they use a whole virus or bacterium, simply the part that triggers the immune system, or just the genetic information that supplies the instructions for manufacturing specific proteins rather than the actual virus.

2.4 Vaccine Hesitancy

According to Soares et al. (2021), vaccine hesitancy is defined as the refusal, reluctance, or delay in accepting immunization despite the availability of vaccination services. It has been named one of the top ten dangers to global health by the World Health Organization (WHO) in 2019. Vaccine hesitancy is the result of a complex decision-making process influenced by a variety of contextual, individual, and group factors, as well as vaccine-specific factors, such as communication and media, historical influences, religion/culture/gender/socioeconomic, politics, geographic barriers, vaccination experience, risk perception, and vaccination program design.

In another study by Yigit et al. (2021), vaccine hesitancy and refusal refer to postponing or refusing immunization even though vaccination services are available. Vaccine hesitancy and refusal are influenced by various factors, including social, cultural, political, and economic issues. Sallam (2021) defined vaccine hesitancy as a long-standing problem that poses a severe threat to world health, as evidenced by the recurrence of some infectious diseases (e.g., outbreaks of measles and pertussis). COVID-19 vaccine hesitancy could be a roadblock in worldwide attempts to contain the present pandemic, causing struggles on people's health and the economy.

In the research study conducted in Portugal by Soares et al. (2021), vaccine hesitancy can be determined by factors based on demographics. When it comes to age, older people are more likely to get the vaccine right away. According to educational attainment, individuals with secondary education, no education, or a primary education were more likely to refuse the COVID-19 vaccine than those with a university degree. Based on age, females have a more significant chance of delaying vaccines. Individuals who lost income during the pandemic had a higher likelihood of denial and delay than those who did not. Students had a lower chance of being late than employees, and retired people had a lower chance of being refused than workers. There was no apparent link regarding the monthly household income.

Restricting the analysis for people with a university degree, age, gender, and retirement status was no longer linked to the unwillingness to take the COVID-19 vaccine. Gender, age, income loss, and occupation were no longer significant factors for those without a university degree. However, different results were observed in the sensitivity analysis, even though monthly

household income was not substantially connected with vaccine intention. Participants with a university degree and a higher household income, on the other hand, had a higher risk of being late than those with a monthly family income of less than 650 €. These findings, however, were not constant across all income groups.

Various factors affect the perception of vaccination, including beliefs and attitudes such as vaccine efficacy and its benefits, safety concerns and side effects, social environment, and political ideology (Saied et al., 2021). Also, financial income, vaccination cost, and mode and place of administration are barriers that affect the COVID-19 vaccine uptake (Muqattash, Niankara, Traoret, 2020).

Each individual has a different belief from one another. As the COVID-19 vaccines are relatively new, the public has a lot of concerns regarding their effectiveness. People are highly skeptical about the safety that these vaccines impose. They felt that the development, testing, and manufacturing of the different kinds of COVID-19 vaccines were all rushed to cater to the needs of many (Saied et al., 2021). In the context of belief, other groups think that getting vaccinated does not equate to being safe (Bautista et al., 2021). With this, people who perceive that vaccines bring more harm than good are individuals who often reject the idea of vaccination (Baldolli et al., 2020). To reduce the public's distrust of the available vaccines, the Department of Health (2021) emphasized that the vaccines utilized in the country tagged with EUA are all approved by the WHO and the FDA. These vaccines are safe because they have undergone multiple clinical trials to ensure effectiveness, viability, and quality. All vaccines approved have an efficacy rate of more than 50% and are continuously being monitored and evaluated for safety purposes (WHO, 2021).

The reluctance to get vaccinated is also affected by the proliferation of rampant misinformation and anti-vaccine movements (Saied et al., 2021). The current infodemic about certain medications like Ivermectin being an effective cure against the virus is widespread, especially on social media platforms where the exchange of information, whether right or wrong, is achieved in just a click of a finger. Scientists, medical professionals, and the FDA already proved that such medication does not treat the disease (FDA, 2021). With two contradicting views on the virus's prevention, people who are not that knowledgeable about this topic will be more inclined not to get vaccinated at all.

Government officials should appropriately mandate the proper dissemination of information regarding the benefits of vaccines on reliable platforms such as official social media accounts, newspapers, and newscasts on televisions and radios (Saied et al., 2021). In the Philippines, another factor that adds to the public's doubt is the President's decision to disclose the brand of the vaccine administered only when it is the turn of the person to get vaccinated. The political ideology of 'the best vaccine is the one available' of government officials is one of the reasons why many Filipinos are hesitant to undergo vaccination (Lacsa, 2021).

In France, there is an alarming spike in the increase of vaccine-hesitant healthcare workers. Ergo, students in healthcare and medicine are now getting equipped with sufficient vaccination education to positively promote and practice the importance of vaccination in people's health in their future practice. Healthcare students (HCS) are more aware and knowledgeable about the benefits of vaccination in disease prevention than the general public. Because of this, almost all of them agreed that vaccines against COVID-19 are indeed effective. It is common knowledge among HCS that there are also risks present in vaccine administration. Still, most of them positively concurred that safety is guaranteed more than the associated risks (Baldolli et al., 2021). In a similar study conducted in Egypt, almost all medical students understand why COVID-19 vaccination is essential. However, nearly half of the medical student participants are still reluctant to receive their doses. The two most significant factors that contributed to the vaccine hesitancy of the students were the vaccine's ineffectiveness and adverse effects. The leading cause of these uncertainties is the Egyptian government and medical experts' inability to adequately improve their country's situation (Saied et al., 2021).

The Department of Labor and Employment issued the advisory "Guidelines on the Administration of COVID-19 Vaccines in the Workplaces" (DOLE, 2021). This advisory applies to all private sector-owned establishments and their workforce. Although employers are highly encouraged to get fully vaccinated, a section on the advisory strictly emphasized the no discrimination or termination of unvaccinated employees, whether by choice or circumstance.

The mandatory vaccination of students is still not required. Because of the worsening case each day, students are still attending school from home. However, those eligible to be vaccinated, students at least 18 years old, are highly encouraged to do so.

2.5 Medical Technology Internship

The Bachelor of Science in Medical Technology is a four-year course; wherein the last year is spent for an internship program in various sections of a CHED-accredited training laboratory. Article V Section 9.2 states that the medical technology intern must complete two 8-hour and one 16-hour duty per week or four 8-hour duties per week to have 1664 hours of internship in 52 weeks. (CHED Memorandum Order No.13 Series of 2017 Policies, Standards, and Guidelines for the Bachelor of Science in Medical Technology/ Medical Laboratory Science (BSMT/MLS) Program).

As the COVID-19 pandemic transpires, Higher Education Institutions (HEIs) proposed limited face-to-face classes for medical and health allied programs. On February 3, 2021, Mayor Francisco Moreno, Mayor of Manila, approved the said proposal in a discussion, prompting the HEIs to follow the memorandum of the Commission on Higher Education (CHED) and Department of Health (DOH) on coordinating limited face-to-face classes. (City of Manila Government Website, 2021)

During the COVID-19 pandemic, Joint Memorandum Circular No. 2021-001 of CHED and DOH was constructed. This memorandum discusses the "reopening of campuses" on HEIs, beginning with the medical course programs. Based on CHED-DOH Joint Memorandum Circular No. 2021-001 Guidelines on the Gradual Reopening of Campuses of Higher Education Institutions for Limited Face-to-Face Classes during the COVID-19 Pandemic, incoming medical technology interns have the option of limited face-to-face training or filing a leave of absence (LOA). The intended internship was deduced to four days of 12-hour duty from 6 AM to 8 PM and ten days of quarantine, along with synchronous and asynchronous sessions. Assurance of the students' dilemma regarding academic standing for those filing LOA was also considered. Furthermore, due to the limited face-to-face internship, interns on duty from HEIs were considered Category A1.2 on the vaccination last March 27, 2021 (Masterlisting and Vaccination of Student Clerks and Interns Ongoing Duty in Hospitals, and Personnel and Staff of HEI Clinics and Hospitals as Part of Sub-priority Groups A1.1, A1.2, A1.4, or A1.6 respectively, according to the DOH DC No. 2021-0101).

2.6 Conceptual Framework

To describe the conceptual framework in this study, the input-process-output (IPO) model was used. The input variable consists of three major components: the students' awareness regarding COVID-19 vaccination, their willingness to receive the vaccine, and the factors that affected their willingness.

The research process of this study is in the form of an online survey and statistical treatments. Therefore, the correlation of the awareness of the students in COVID-19 vaccination and their willingness to receive the said vaccine gave rise to the findings, conclusions, summary, and recommendations of this research.

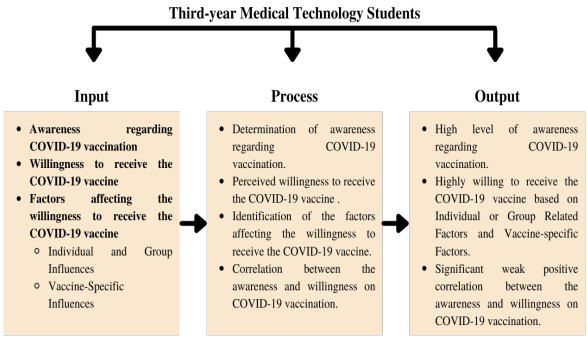

Fig.1. Input-Process-Output (IPO) diagram on the Awareness and Willingness on COVID-19 Vaccination of Third-Year Medical Technology Students

III. RESEARCH METHOD

3.1 Research Design

The research is a quantitative descriptive-correlational study that measured the level of awareness and willingness of third-year medical technology students regarding COVID-19 vaccination and the correlation between these two variables. This research method collected quantifiable data to analyze the hypothesis statistically.

The sampling method that has been used was purposive sampling, wherein the participants were chosen according to the purpose of the study, which in this case, are third-year medical technology students of the A.Y. 2021-2022 from a particular HEI who were expected to have their limited face-to-face internship the following academic year.

3.2 Research Locale

The study was conducted in a Higher Education Institution in Manila, comprising third-year medical technology students. The researchers conducted the study in the chosen HEI in Manila due to the willingness of the HEI to cooperate. Moreover, this helped the researchers achieve the study's objectives in determining the awareness and willingness of

third-year medical technology students regarding COVID-19 vaccination based on their experiences.

3.3 Research Participants of the Study

The participants of the study included the entire population of third-year medical technology students of the current academic year (2021-2022). As part of the curriculum of the Bachelor of Science in Medical Technology, fourth-year students are required to undergo an internship. Assuming that all the third-year medical technology students will be promoted to fourth-year, they will be eligible to receive the COVID-19 vaccine as part of the A1.2 category. Since the study utilized purposive sampling, the survey questionnaire was opened to all third-year medical technology students. The sample size was estimated from 11 sections with approximately 40 students per section. The estimated total population is 440. Using a 5% margin of error and 95% confidence level, a sample size of 93 was generated through the use of Cochran's Formula. For the purpose of achieving data saturation, 96 participants were included in the study.

3.4 Research Tool

The researchers have gathered data by creating a questionnaire using Google Forms, an online tool developed by Google. The data gathered from Google Forms were automatically collected through Google Spreadsheet, which the researchers used for further analysis. A face-to-face procedure of data gathering was not performed because of the COVID-19 pandemic.

The 28-item self-made questionnaire was structured and divided based on the questionnaires used by other related studies found in Chapter 2. The questionnaire was divided into five main parts: demographic questions, vaccination status, awareness regarding COVID-19 vaccination, willingness to receive the said vaccination, and factors affecting the willingness to receive the COVID-19 vaccine. The researchers formulated all questions from the questionnaire except for the last part, which were based on the survey questions from the WHO. The questions were structured as close-ended questions, specifically 4-point Likert scale or forced Likert scale to avoid mid-point or central tendency, except for the demographic questions. There were no open-ended questions included in the questionnaire.

The demographic questions consisted of the participant's profile, including the name (optional), age, gender, and class section. The second part consisted of a question regarding the vaccination status of the participant. Moreover, the third part involved questions about COVID-19 vaccination, including common and basic knowledge about COVID-19 vaccination in the Philippines. Several questions in this part were fact-based to assess further the participants' awareness about the available COVID-19 vaccines. The information regarding these questions came from various sources and organizations that provide reliable information about COVID-19, such as DOH, CDC, WHO, and Harvard Health Publishing (Harvard Medical School). In the fourth part, the participants were asked about their willingness to get vaccinated with certain conditions.

The last part of the questionnaire was based on the survey questions that the WHO formulated. The questions regarding factors of vaccine hesitancy were modified to fit the intended content of the questionnaire, which is to assess the factors influencing the participants' willingness to receive COVID-19. This part was divided into two components, based on the survey questions from the WHO: individual and group influences and vaccine-specific influences. The questions on the first component were based on various factors such as experience from the previous vaccination, beliefs about health and prevention, information of COVID-19 vaccines, trust in the health system, personal risk-benefit, and immunization as a social norm. These factors were further specified in the questionnaire. The second component was composed of factors under vaccine-specific influences that affect the willingness to receive the COVID-19 vaccine are scientific evidence-based risk-benefit, design of vaccination program, and cost.

A pilot test was conducted before the utilization of the research tool. A total of 20 participants were included in the pilot test, which are then removed from the actual participants after validation. To test the validity of the survey questionnaire, the researchers used Cronbach's Alpha, a measure of scale reliability. The questionnaire had a score of 0.73, indicating that the questions have high internal consistency, given that a score of 0.70 or higher is considered acceptable.

3.5 Data Gathering Procedure

The study has been conducted on third-year medical technology students of the A.Y. 2021-2022. The recruitment technique used was snowballing technique. The researchers wrote a letter to the recognized student organization for the list of names and email addresses of the class presidents of each block. Upon gathering the list of all class presidents, the survey questionnaire was forwarded to them through email and messaging applications, and they were asked to disseminate it to the members of the block.

Dissemination of the Google forms used online platforms such as email, Facebook, and Facebook Messenger through an email letter (using the provided email address of the HEI), a post with the Gform link, and a chat with the Gform link, respectively. The informed consent form was included in the survey questionnaire, and the participants had the option to agree or refuse to participate in the study.

The accomplished survey questionnaire was only available and accessible to the researchers to adhere to confidentiality and data privacy, which was also stated in the informed consent. Those who participated in the study were redirected to answer the survey questionnaire. It took an estimated 5 to 10 minutes to accomplish the survey questionnaire. The platform automatically collected and organized the participants' data. Google sheets or GSheets were utilized to gather the provided information of the participants. The collection of data lasted for a month, from the 18th of February to the 22nd of March 2022.

3.6 Ethical Aspect of the Study

The study was submitted to a Review Ethics Committee for review and was granted approval through the REC Certificate of Approval for study protocol code FOP-ERC-2122-029 (Appendix H).

To learn the awareness of third-year Medical Technology students on COVID-19 vaccination, the researchers conducted an anonymous, online survey based on a self-designed, structured questionnaire.

Upon opening the questionnaire, the participants were informed about the researchers, the research objectives, the data to be collected, and how it was used. The researchers also stay true to the purpose and the results of the study.

The participants' names were optional in the survey questionnaire so that they have the right to choose whether they want to participate anonymously or not. Either way, any information gathered from all the participants remained confidential and were not revealed in any part of the study. The participants were also allowed to withdraw from the study at any time with no need for explanation. In case of withdrawal, the data that have been submitted were immediately deleted and excluded from the research. Likewise, after the research has been defended, all data gathered pertinent to the study were also deleted.

To observe non-maleficence, it has been of utmost assurance that no participant was harmed before, during, or after the conduct of the study as a result of their participation. All qualified participants were given the chance to answer the survey questionnaire. Discrimination or exclusion of a particular individual from participating for any reason that harm the practice of justice was not allowed.

The primary data gathered were preserved through Google forms (Gforms) wherein the researchers were the only viewers and editors. The data were kept only after the final defense. Privacy and confidentiality were observed since all the information that was gathered were stored in a document where only the researchers had access to. Also, all their information was only kept until the final thesis defense. It is ensured that the data were deleted after that time. For the data protection plan, all research-related documents were done on password-protected laptops, file servers, and storage devices. Files were not stored on removable storage media such as USBs since there is a chance that they can be lost. These documents were only accessed using the university email to maintain an academic environment. Also, encryption was used when a file is transferred from one researcher to another. With these protection plans, unintended disclosure of confidential data of our research participants were prevented.

There were no benefits on the part of the medical technology students who participated in the study. This research has not posed physical, psychological, social, and economic risks to the participants since there was no bodily harm, physical and mental discomfort, or injury associated with the research procedures.

The principal data gathered under the safety monitoring plan were quantitative data. The researchers were responsible for monitoring all data gathered. The researchers were also responsible for guaranteeing that compliance with protocols were met and that safety reviews were conducted daily. Adverse events that will be encountered in the duration of the study will be reported immediately to the research instructor and statistical center. This protocol presents no risks to the well-being of the participants. All research activities were geared towards the protection of the participants, validity of the data, and integrity of the research study.

This research did not conduct any post-trial clinical access because there are no clinical trials conducted. This study does

not include any financial incentive nor compensation to the research participants as the researchers did not anticipate any study-related injuries. Community considerations and collaborative study terms of reference were also not included since the study only focused on a particular subgroup within an institution. It did not involve community participation or any multi-country or multi-institutional study. Therefore, the researchers have no conflicts of interest declared.

For the dissemination or data sharing plan, only the results were disclosed when the study was published or presented on various platforms or professional research forums since the raw data and the information of all participants were discarded permanently. Future researchers may also cite the findings found in the published study. If any interested educational institutions or other organizations will request a copy of the data, only the results will be released and any information involving the participants will remain confidential.

The study followed the format and ethical considerations of the American Psychological Association's 7th Edition Manual (2019). The researchers used sources such as studies and statistical results provided by health organizations, mainly the DOH, CDC, and WHO, related to COVID-19 and the ongoing pandemic. In addition, recent scholarly studies related to COVID-19 vaccination were cited in this work. The data collected from the participants of the online survey aided in the analysis of the insight of third-year students on COVID-19 vaccination.

3.7 Data Analysis and Interpretation of Results

The analysis and interpretation of the study was conducted using the latest Statistical Package for the Social Sciences or SPSS version 27. This allowed the researchers to gather and analyze complex statistical data as well as maintain the accuracy, precision, and reliability of the results.

This study utilized a descriptive statistical test and Spearman's rank-order correlation. A descriptive statistical test was used to show the distribution and the variability of the participants' answers, wherein the questions asked were answered through the 4-point Likert scale. To determine the correlation of the awareness of third-year medical technology students on available COVID-19 vaccines in the Philippines and their willingness to receive COVID-19 vaccines, Spearman's rank-order correlation was employed. In addition, this evaluated the null and alternative hypotheses of the study.

IV. RESULTS AND DISCUSSION

4.1 Demographic Profile

Table.1. presents the demographic profile of the participants using frequency and percentages. Among the 96 participants, 1% (n=1; N=96) was 18 years old, 3.1% (n=3; N=96) were 19 years old, 29.2% (n=28; N=96) were 20 years old, 59.4% (n=57; N=96) were 21 years old, 6.3% (n=6; N=96) were 22 years old, and 1% (n=1; N=96) was 23 years old. The majority of the participants were females (71.9%); n=69; N=96 and the remaining were male (28.1%); n=27; N=96.

	Variables	Frequency (n)	Percentage (%)
Age	18	1	1.0
	19	3	3.1
	20	28	29.2
	21	57	59.4
	22	6	6.3
	23	1	1.0
	Total (N)	96	100.0
Sex	Male	27	28.1
	Female	69	71.9

4.2 Vaccination Status

Table.2. presents the vaccination status against COVID-19 of the participants using frequency and percentages. All of the participants are vaccinated against COVID-19 (100%); n=96; N=96.

	Variables	Frequency (n)	Percentage (%)
Vaccination Status (COVID-19)	Vaccinated	96	100
	Unvaccinated	0	0.0

	Total (N)	96	100.0

4.3 Awareness regarding COVID-19 Vaccination

The awareness of the third-year medical technology students regarding COVID-19 vaccination in frequency and percentage is presented in Table 3. Among the 96 participants, 13.5% agreed (n=13; N=96) and 86.5% strongly agreed (n=83; N=96) that Pfizer, AstraZeneca, and Sinovac COVID-19 vaccines are available in the Philippines. Moreover, 1.0% of the participants strongly disagreed (n=1; N=96) and 7.3% disagreed (n=7; N=96) that the current COVID-19 vaccine priority groups in the Philippines are Priority Eligible A, B, and C but majority 44.8% agreed (n=43; N=96) and 46.9% strongly agreed (n=45; N=96). In the statement, based on the Phase III Clinical Trial, Pfizer has the highest efficacy among the COVID-19 vaccines the participants 4.2% disagreed (n=4; N=96), 41.7% agreed (n=40; N=96) and 54.2% strongly agreed (n=52; N=96). Meanwhile, the 2.1 % of the participants disagreed (n=2; N=96) that Pfizer, AstraZeneca, and Sinovac are approved for Emergency Use Authorization (EUA) in the Philippines, but majority 28.1% agreed (n=27; N=96) and 69.8% strongly agreed (n=67; N=96). Almost similarly, in the statement, Pfizer is fully approved by the Food and Drug Administration (FDA) of the Philippines, 3.1% of the participants disagreed (n=3; N=96), 28.1% agreed (n=27; N=96), and 68.8% strongly agreed (n=66; N=96). Lastly, 1.0% of the participants disagreed (n=1; N=96) that the possible side effects of the COVID-19 vaccine are pain, fever, and fatigue but majority 13.5% agreed (n=13; N=96) and 85.4% strongly agreed (n=82; N=96).

	Variables	Frequency (n)	Percentage (%)
Pfizer, AstraZeneca, and Sinovac are COVID-19 vaccines available in the Philippines.	Agree	13	13.5
	Strongly Agree	83	86.5
	Total (N)	96	100.0
The current COVID-19 vaccine priority groups in the Philippines are Priority Eligible A, B, and C.	Strongly Disagree	1	1.0
	Disagree	7	7.3
	Agree	43	44.8
	Strongly Agree	45	46.9
	Total (N)	96	100.0
Based on the Phase III Clinical Trial, Pfizer has the highest efficacy among the COVID-19 vaccines.	Disagree	4	4.2
	Agree	40	41.7
	Strongly Agree	52	54.2
	Total (N)	96	100.0
Pfizer, AstraZeneca, and Sinovac are approved for Emergency Use Authorization (EUA) in the Philippines.	Disagree	2	2.1
	Agree	27	28.1
	Strongly Agree	67	69.8
	Total (N)	96	100.0
Pfizer is fully approved by the Food and Drug Administration (FDA) of the Philippines.	Disagree	3	3.1
	Agree	27	28.1
	Strongly Agree	66	68.8
	Total (N)	96	100.0
The possible side effects of the COVID-19 vaccine are pain, fever, and fatigue.	Disagree	1	1
	Agree	13	13.5
	Strongly Agree	82	85.4
	Total (N)	96	100.0

4.4 Willingness to receive the COVID-19 Vaccine

Table 4 presents the willingness of the third-year medical technology students to receive the COVID-19 vaccines in certain conditions and/or circumstances using frequency and percentage. With a total of 96 participants, 2.1% (n=2) agree and 97.9% (n=94) strongly agree that they were willing to receive the said vaccine and if it is/was available for the general public in the Philippines. Moreover, most of the participants (85.4%; n=82; N=96) were willing to be vaccinated if the

school administers the vaccine, even with a payment. If the COVID-19 vaccine is/was required, 88.5% of the participants (n=85; N=96) strongly agree and 9.4% of the participants (n=9; N=96) agree to be inoculated.

	Variables	Frequency (n)	Percentage (%)
I will be (for unvaccinated)/ I was (for vaccinated) willing to receive the COVID-19 vaccine.	Agree	13	13.5
	Strongly Agree	83	86.5
	Total (N)	96	100.0
I will be (for unvaccinated)/ I was (for vaccinated) willing to accept the COVID-19 vaccine if it is/was generally available in the Philippines.	Agree	4	4.2
	Strongly Agree	92	95.8
	Total (N)	96	100.0
I will be (for unvaccinated)/ I was (for vaccinated) willing to receive the COVID-19 vaccine if the school administers it (With payment).	Strongly Disagree	4	4.2
	Disagree	10	10.4
	Agree	32	33.3
	Strongly Agree	50	52.1
	Total (N)	96	100.0
I will be (for unvaccinated)/ I was (for vaccinated) willing to receive the COVID-19 vaccine if it is/was required.	Strongly Disagree	1	1.0
	Disagree	1	1.0
	Agree	9	9.4
	Strongly Agree	85	88.5
	Total (N)	96	100.0

4.5 Factors affecting the willingness to receive the COVID-19 Vaccine Individual and Group Influences

This table shows the individual and group influences that affect the willingness of third-year medical technology students to receive COVID-19 vaccination in frequency and percentage. On the willingness to receive the COVID-19 vaccination after testing positive for COVID-19, 57.3% (n=55; N=96) participants strongly agreed. Likewise, 64.6% (n=55; N=96) participants strongly agreed to receive the vaccine if they stayed with a family member who tested positive for COVID-19. On the contrary, 40.6% (n=39; N=96) of the participants disagreed with getting vaccinated after having a bad reaction to their previous vaccination, while 31.3% (n=30; N=96) agreed. Similarly, 40.6% (n=39; N=96) of the participants also disagreed with getting the vaccine in knowing someone whose condition worsened after getting the vaccine, while each of the options strongly disagree and agree were selected by 24% (n=23; N=96) of the participants.

Moreover, 90.6% (n=87; N=96) of the participants strongly agreed that receiving the vaccine is an essential preventive measure to avoid acquiring COVID-19, while 9.4% (n=9; N=96) of the participants chose to agree. Meanwhile, 57.3% (n=55; N=96) of the participants strongly agreed to get vaccinated while trusting the information they see online regarding the safety and efficacy of the COVID-19 vaccine, 39.6% (n=38; N=96) agree, and only 3.1% (n=3; N=96) of the participants disagreed.

Among the 96 participants, 69.8% (n=67; N=96) strongly disagreed on the context of whether or not they are willing to get vaccinated if they believe that receiving the COVID-19 vaccine is unnecessary if everyone else is vaccinated. It can also be seen that 36.5% (n=35; N=96) agreed that they are open to receiving the COVID-19 vaccine if most of the people they know are vaccinated. For the last scenario, 62.5% (n=60; N=96) strongly disagreed on the context of whether or not they are willing to receive the vaccine even if they do not believe in it as people might judge them.

	Variables	Frequency (n)	Percentage (%)
Testing positive for COVID-19.	Strongly Disagree	10	10.4
	Disagree	11	11.5
	Agree	20	20.8
	Strongly Agree	55	57.3
	Total (N)	96	100.0
Staying with a family member who tested positive from COVID-19.	Strongly Disagree	9	9.4
	Disagree	7	7.3
	Agree	18	18.8
	Strongly Agree	62	64.6
	Total (N)	96	100.0
Having a bad reaction to a vaccine from my previous vaccination.	Strongly Disagree	19	19.8
	Disagree	39	40.6
	Agree	30	31.3
	Strongly Agree	8	8.3
	Total (N)	96	100.0
Knowing someone whose condition worsened after receiving the vaccine.	Strongly Disagree	23	24.0
	Disagree	39	40.6
	Agree	23	24.0
	Strongly Agree	11	11.5
	Total (N)	96	100.0
Believing that receiving the vaccine is an essential preventive measure to avoid acquiring COVID-19.	Agree	9	9.4
	Strongly Agree	87	90.6
	Total (N)	96	100.0
Trusting the information that I see online regarding the safety and efficacy of the COVID-19 vaccine.	Disagree	3	3.1
	Agree	38	39.5
	Strongly Agree	55	57.3
	Total (N)	96	100.0
Believing that receiving the COVID-19 vaccine is unnecessary if everyone else is vaccinated.	Strongly Disagree	67	69.8
	Disagree	21	21.9
	Agree	4	4.2
	Strongly Agree	4	4.2
	Total (N)	96	100.0
Receiving the COVID-19 vaccine because most of the people I know are vaccinated.	Strongly Disagree	17	17.7
	Disagree	23	24.0
	Agree	35	36.5
	Strongly Agree	21	21.9
	Total (N)	96	100.0
Receiving the COVID-19 vaccine as people might judge me though I do not believe in	Strongly Disagree	60	62.5
	Disagree	24	25
	Agree	8	8.3

vaccines.	Strongly Agree	4	4.2
	Total (N)	96	100.0

4.6 Vaccine-Specific Influences

Table 6 presents the vaccine-specific influences that affect the willingness of third-year medical technology students to receive COVID-19 vaccination in frequency and percentage. Among the 96 participants, 77.1% (n=74; N=96) strongly agree that they are willing to receive a vaccine with high efficacy. Similarly, 60.4% (n=58; N= 96) strongly agreed that they are open to receiving a vaccine with few side effects. Lastly, 49% (n=47; N=96) strongly agreed that they are willing to be vaccinated if they have a preferred vaccination program design (health center, mass vaccination, or school-based immunization).

	Variables	Frequency (n)	Percentage (%)
Receiving the vaccine with high efficacy.	Agree	22	22.9
	Strongly Agree	74	77.1
	Total (N)	96	100.0
Receiving a vaccine that renders few side effects.	Disagree	8	8.3
	Agree	30	31.3
	Strongly Agree	58	60.4
	Total (N)	96	100.0
Having a preferred design of a vaccination program. (Health center, mass vaccination, or school-based immunization).	Disagree	17	17.7
	Agree	32	33.3
	Strongly Agree	47	49.0
	Total (N)	96	100.0

4.7 Correlation between Awareness and Willingness Regarding COVID-19 Vaccination

Table.7. presents the correlation between the awareness and willingness regarding COVID-19 using Spearman's rank correlation coefficient. There is a significant weak positive relationship between the awareness of COVID-19 vaccine availability and willingness to be vaccinated when it is generally available (r=.222; p<.030), the awareness of vaccine EUA and willingness to be vaccinated when it is generally available (r=.230; p<.024), the awareness of full vaccine approval of Pfizer by the Philippine FDA and willingness to be vaccinated when the school administer it (r=.207; p<.043), and the possible side effects of COVID-19 vaccine and willingness to be vaccinated when it is generally available in the Philippines (r=.206; p<.044) and if it is required (r=.210; p<.040). On the other hand, the awareness of the priority groups and efficacy of Pfizer has no significant relationship to the willingness to be vaccinated.

Awareness		Willing to receive the COVID-19 vaccine	Willing to accept the COVID-19 vaccine if generally available in the Philippines	Willing to receive the vaccine if the school administer it (with payment)	Willing to receive the vaccine if required
Pfizer, AstraZeneca, and Sinovac are COVID-19 vaccines available in the Philippines.	r	.155	.222*	.095	.138
	p-Value	.131	.030	.359	.179
The current COVID-19 vaccine priority groups in the Philippines are Priority Eligible A, B, and C.	r	.108	.063	.066	0.28
	p-Value	.293	.543	.526	.789
Based on the Phase III Clinical Trial, Pfizer has the highest efficacy among the COVID-19 vaccines.	r	.072	.154	.046	.128
	p-Value	.485	.133	.665	.216

Pfizer, AstraZeneca, and Sinovac are approved for Emergency Use Authorization (EUA) in the Philippines.	r	.107	.230*	.044	.193
	p-Value	.299	.024	.667	.059
Pfizer is fully approved by the Food and Drug Administration (FDA) of the Philippines.	r	.054	.185	.207*	.189
	p-Value	.603	.071	.043	.066
The possible side effects of the COVID-19 vaccine are pain, fever, and fatigue.	r	.144	.206*	.158	.210*
	p-Value	.161	.044	.125	.040
*. Correlation is significant at the 0.05 level (2-tailed).					

4.8 Discussion

Table 3. Awareness regarding COVID-19 Vaccination

The frequency table of the awareness of third-year medical technology students regarding COVID-19 vaccination is shown in table 3. Six questions were given in the survey questionnaire for this section. The result on the first question, if Pfizer, AstraZeneca, and Sinovac are COVID-19 vaccines available in the Philippines, varied only between agree and strongly agree. This means that the participants were knowledgeable on what vaccines are available in the Philippines. On the other hand, the results on the second question, if the current COVID-19 vaccine priority groups in the Philippines are Priority Eligible A, B, and C were distributed among all variables (strongly disagree, disagree, agree, and strongly agree). The results for the last four questions varied only between disagree, agree, and strongly agree. For the second to the last question, the participants assumed that Pfizer is fully approved by the Food and Drug Administration (FDA) of the Philippines as the majority of the participants agreed to the question. Pfizer vaccine or any COVID-19 vaccine has been authorized by the FDA of the Philippines for EUA only (FDA, 2022). COVID-19 vaccines have not yet applied for full market authorization in the Philippines, including Pfizer, which has been fully approved by the United States (Galvez, 2021).

Overall, it is observed that the third-year medical technology student participants were highly aware of the basic knowledge about COVID-19 vaccination, with only a 1% to 7.3% range of the participants deviating in the responses to the questions. This is similar to the study conducted by Islam et al. (2021), through a community survey in Bangladesh which got a 57% overall correct rate. Participants who reported having a university or higher level of education, nuclear families, being in the upper SES group, residing in metropolitan areas, and having a past history of taking all essential immunizations had a considerably higher mean score of knowledge.

Table 4. Willingness to receive the COVID-19 Vaccine

Table 4 shows the frequency table of the willingness of third-year medical technology students to receive the COVID-19 vaccine. A total of four questions were generated in the survey questionnaire for this section. The results for the first two questions, about their will to receive the vaccine in general and depending on the availability of the vaccine in the country, were distributed only between agree and strongly agree. With this, it can be inferred that the third-year medical technology students from an HEI in the country were willing to be inoculated with the COVID-19 vaccine and whenever it is/was available for public consumption/use.

However, there is a different distribution of the responses in the last two questions of Table 4 regarding the vaccine administration facilitated by the school with a payment and that the vaccine was a requirement. The responses were distributed in all variables (Strongly Disagree, Disagree, Agree, and Strongly Agree). According to Park et al. (2021), school-located vaccination events (SLVE) cause low morbidity and mortality due to prevention of disease with the vaccines introduced. Also, since the location was in school, it was an "ideal place" to reach various people in different categories and its accessibility. Moreover, 61.2% of the Pakistani university students were willing to pay for the vaccine (Hossian et al., 2022). Middle- and high-income groups in Chile had 83% willingness to pay (WTP) analysis based on Cerda and Garcia (2021). Studies in Indonesia, Ecuador, and Nigeria showed that 78.3%, 85%, and 36.7 % of their participants respectively, confirmed their WTP (Harapan et al., 2020; Sarasty et al., 2020; Alice Tobin et al., 2021). In line with this, the location of the

vaccination program and/or the monetary value of the vaccine were shown as one of the factors of the participants' willingness and the variation of the responses.

From the results of Graeber et al. (2021), 70% of adults in Germany were willing to be vaccinated of the COVID-19 vaccine voluntarily, half (49%) of the participants were in favor of mandatory vaccination, and that almost 60% of those in favor of voluntary vaccination also approved of mandatory vaccination. Likewise, since all of the participants were generally willing to receive the vaccine, although there were a few who chose differently, voluntariness affected their willingness to have the COVID-19 vaccine if it is/was required.

Majority of the responses were positive even with the given conditions stated for the inoculation of the vaccine. Collectively, the third-year medical technology students from an HEI in the Philippines were willing to receive the COVID-19 vaccine.

Table 5. Factors affecting the willingness to receive the COVID-19 vaccine (Individual and Group Influences)

The willingness of third-year medical technology students is influenced by various factors, including individual influences such as one's perceptions and personal experiences on COVID-19 and vaccines in general, as well as group influences such as the history of family members testing positive for COVID-19 and other people's experiences on receiving the COVID-19 vaccine. In table 5, participants were given various situations involving individual and group influences to assess their willingness to accept the COVID-19 vaccine. Most of the participants were willing to receive vaccination upon testing positive for COVID-19 and staying with a family member who tested positive for COVID-19. This is in line with the study of Kamal et al. (2021), which focused on the willingness of the participants to receive COVID-19 vaccination in consideration of individual- and family-level factors. Their study revealed higher odds of willingness to be vaccinated in participants who had a high risk of testing positive for COVID-19 and those who had COVID-19 positive family members.

Moreover, although some participants were still willing to receive COVID-19 vaccination after having a bad reaction from their previous vaccination and knowing someone whose condition worsened after receiving the vaccine, most participants were less willing to receive it. This indicates that unpleasant personal experiences and experiences of other people from vaccines may cause an individual to disagree with getting vaccinated against COVID-19, which is consistent with the findings of the studies by other studies focused on the refusal of people to get the COVID-19 vaccination. For instance, Cerda and Garcia (2021) found out that there is an increased relative probability of refusal and rejection to receive the vaccine due to increased concern about side effects. Similarly, the study of Malik et al. (2021) showed 33.17% rejection of males owing to the side effect profile of the vaccine, and the study of Alqudeimat et al. (2021) revealed that individuals who perceived vaccines to be linked to health-related risks were less willing to receive COVID-19 vaccination.

Furthermore, the association of strong intentions to receive COVID-19 vaccination with high concerns of contracting COVID-19 infection was revealed in a study conducted by Alfageeh et al. (2021). This is in accordance with the finding of the present study wherein all participants were willing to receive COVID-19 vaccination upon believing that it is an essential preventive measure to avoid acquiring COVID-19 since the responses only varied from "agree" and "strongly agree", as seen in Table 5. Meanwhile, upon trusting the information they saw online regarding the safety and efficacy of the COVID-19 vaccine, only three participants were not willing to receive the vaccine, while the rest were willing. This is in line with the findings of another study, which revealed that the use of social media for COVID-19 vaccine-related information has a significant association with a higher intention to get vaccinated against COVID-19 (Mo et al., 2021). This denotes the critical role of information that people see online, especially regarding the COVID-19 vaccines' efficacy and safety, on the willingness of people to get vaccinated.

Another factor that affects the willingness of the participants to receive the COVID-19 vaccine is the idea that it is unnecessary to undergo vaccination when a lot of people are already vaccinated. Most of the participants strongly disagreed with this statement, which denotes that they believe in the importance of vaccination. This result is in line with a study conducted by Neagu (2020) that focuses on the challenges of achieving herd immunity. The findings showed that other factors that make it difficult to form an effective herd immunity include population availability and societal differences. Therefore, this study provided an idea on how we can better understand the differences in the stance on vaccination of the participants.

The response of the participants in the following situation is varied. Some participants agreed that they are willing to undergo vaccination if they know someone who received the vaccine. However, this was not the case for all, as some participants disagreed. This result is explained by the study conducted by Salali and Uysal (2021), where it was concluded that the increase in vaccine uptake is directly affected by conformist bias. It indicates that more people are willing to get vaccinated when they observe that friends and family remain healthy after the COVID-19 vaccination. With this, hesitant people are also encouraged because of the visible positive effects of the vaccine.

For the last scenario in this category, most participants strongly disagreed on the context of whether or not they are open to receiving the COVID-19 vaccine even if they don't believe in it because of people's judgment. This result correlates with the study conducted by Lin, Tu, and Beitsch (2021), which revealed that good communication strategies contribute to the confidence and receptivity to COVID-19 vaccines. Also, constant encouragement and sharing experiences such as personal stories regarding peer pressure with their loved ones and trusted people cause reluctant individuals to consider vaccination. Most importantly, the study found that social expectations and manifestations of regret from their inaction are some of the motivators for their acceptance of immunization. This study provides the idea that the willingness of some participants toward COVID-19 vaccines is socially motivated.

Table 6. Factors affecting the willingness to receive the COVID-19 vaccine (Vaccine-Specific Influences)

Another factor that affects the willingness of the participants to receive the COVID-19 vaccine is vaccine-specific influences such as their efficacy, side effects, and type of vaccination program. Various scenarios that correspond to these factors are presented in Table 5. For vaccine efficacy, the participants only selected the variables "strongly agree" and "agree." This result shows that all participants acknowledge that they are willing to receive a vaccine that has a high efficacy. This thought is in line with the study of El-Elimat et al. (2021), which focused on how vaccine efficacy is detrimental to the public's health decisions in current and future vaccination campaigns. Their study backs up the participants' idea on vaccine efficacy because providing accurate information about vaccines contributes to the public's trust regarding vaccination, especially the reluctant ones.

The responses to the last two questions were distributed in three variables, specifically agree, strongly agree, and disagree. More than half of the participants strongly agreed that they are willing to undergo vaccination with a vaccine that renders few side effects. However, some participants still disagreed, which denotes that they are not mainly focused on the side effects brought upon by the vaccine. The result is in line with the study conducted by Cerda and Garcia (2021), which revealed that the public is more inclined to choose vaccines with fewer side effects than higher effectiveness in their vaccine preference. Based on the study, the main reason why people are indecisive about vaccination is because of the extent of risk and adverse reactions provided by these vaccines.

For the last scenario in this category, less than half of the participants are willing to get vaccinated if they have a preferred design of vaccination program. The participants had varied responses regarding the program for inoculation. Some participants may have wanted the immunization against COVID-19 to transpire at health centers, mass vaccination programs, or schools. However, it is important to note that a small fraction of the participants disagree; thus, they may have no definite preference regarding the design of the vaccination program.

Table 7. Correlation between Awareness and Willingness Regarding COVID-19 Vaccination

The awareness of the vaccines available in the Philippines has a significant weak positive correlation to the willingness to be vaccinated if generally available in the Philippines, with a correlation coefficient of .222. This means that the awareness of vaccines available in the Philippines, although minimal, still has a relationship with the willingness to get vaccinated if generally available in the Philippines and is significant at .030, which falls under the 0.05 level.

The WHO stated in 2017 that the physical availability of the vaccine affects people's willingness to get vaccinated. Therefore, if vaccines are available, this would increase people's likelihood of getting them. Furthermore, in a 2021 study of Yoda and Katsuyama, the majority of the participants (67%) were willing to get vaccinated due to their awareness of its availability, supporting the correlation result. The same study also presented data from other countries, such as France, Germany, the UK, and Denmark, wherein most of the participants were willing to get vaccinated according to the

availability of the vaccine. Adequate awareness regarding the available COVID-19 vaccines in the Philippines may increase the willingness of the students to receive the vaccine.

The awareness of the approval of vaccines for EUA and the willingness to be vaccinated when generally available in the Philippines has a significant weak positive correlation with a correlation coefficient of .230 and is significant at a .024 level. Like the first correlation, it does not have a strong relationship; nevertheless, they are still significantly related to one another. According to the WHO (2017), people become more confident in receiving a vaccine by trusting the system that delivers it.

This refers to the reliability and the competence of the health services and known institutions. Therefore, if the students are aware of the EUA approval of the COVID-19 vaccines, this may encourage them to receive the vaccine knowing that a well-known institution has approved it. This result is further strengthened by the study of Guidry et al. in 2021, wherein 60% of the participants were either definitely or probably willing to receive the COVID-19 vaccine under a EUA.

A weak positive correlation is observed between the awareness of whole vaccine approval of Pfizer by the Philippine FDA and willingness to be vaccinated when the school administers it, with a correlation coefficient of .207 falling under the .043 level, an indication of a significant relationship among the two variables.

The study of Koritala et al. in 2021 stated that a full FDA approval provides detailed information about the vaccine, which may encourage unwilling populations to get the vaccination. Moreover, according to the recent study of Diament et al. (2022), an FDA approval reassures the people that a group of experts carefully evaluated the vaccine, increasing their willingness to be vaccinated. The students' willingness to get vaccinated increases with the confidence given by the full vaccine approval of Pfizer by the Philippine FDA.

The awareness of the possible side effects of the COVID-19 vaccine has a weak positive correlation to the willingness to be vaccinated when the vaccine is generally available in the Philippines and if vaccination is required having a correlation coefficient of .206 and .210, respectively, both falling under 0.05 significance level, denoting that the relationships are both significant.

In the previously mentioned study by Koritala et al. (2021), it is stated that the resistance of the public toward vaccinations may be due to potential side effects, and therefore, better informed and aware patients are more encouraged to be vaccinated. From the correlation result, it is observed that the students' willingness to get vaccinated is significantly correlated with the awareness of the possible side effects of the vaccines. Moreover, according to Turbat et al. (2021), 93.7% of the participants in their study agree with the mandatory vaccination policy with the awareness of the vaccine's possible side effects. Other countries such as Germany (68.4%) and Greece (70.6%) also provided the same result.

V. SUMMARY, CONCLUSION, AND RECOMMENDATION

5.1 Summary

This chapter presents the summary and conclusion of the results, which intends to determine the awareness and willingness of third-year medical technology students on COVID-19 vaccination. The researchers collected responses from 96 third-year medical technology students through a survey questionnaire. They analyzed the level of awareness of the participants regarding the COVID-19 vaccination, as well as their willingness to receive the COVID-19 vaccine. The researchers also sought to identify the different factors that affect the participants' willingness to receive the COVID-19 vaccine and to determine the correlation of their level of awareness regarding COVID-19 vaccination to their willingness to get vaccinated. Finally, this chapter presents the researchers' recommendations for future researchers, addressing certain limitations of the study, and providing solutions that may be implemented based on the results of the study.

Data collection was conducted using a purposive sampling method and snowballing technique with a self-made survey questionnaire that was employed through Google forms and sent to the participants via email. The participants were third-year medical technology students of the academic year 2021 to 2022 who are expected to have a limited face-to-face internship the following school year. This is a quantitative research study that utilized frequency and percentage statistical tools, as well as descriptive statistical tests and Spearman's rank-order for the analysis of data.

The collected data were later analyzed by an accredited statistician using the previously mentioned statistical tools and methods of analysis through the software SPSS version 27. It

consisted of six main parts, with the demographic profile being the first, followed by the vaccination status of the participants. The results show that 100% of the participants were vaccinated against COVID-19.

The first objective of the study was to determine the level of awareness of the participants regarding COVID-19 vaccination. Hence, this section of the survey was based on fact-based questions. As seen in Table 3, the majority of participants agree on all items, and only a few of them disagreed on all items except the first item, indicating that most of the participants have a high level of awareness regarding COVID-19 vaccination. The percentage of participants who answered "strongly agree" with getting vaccinated ranges from 46.9% to 86.5%, and the percentage of those who answered "agree" ranges from 13.5% to 41.7%. Meanwhile, there was only one participant (1%) who strongly disagreed with the second item, while the percentage of those who answered "disagree" ranged from 1% to 7.3%. This shows that only very few participants have low levels of awareness regarding COVID-19.

The second objective of the study was to determine the willingness of third-year medical technology students to receive COVID-19 vaccination. With this, four questions were included in the questionnaire. The results showed that most of the participants were willing to get vaccinated, given various reasons and situations. As presented in Table 4, almost all participants strongly agreed on receiving the vaccine with no specific consequence and given that the COVID-19 vaccine was generally available in the Philippines with percentages of 97.9 and 95.8, respectively, while the rest of the participants answered "agree" (2.1% and 4.2%, respectively). Meanwhile, only 4.2% of the participants strongly disagreed and 10.4% disagreed with getting the COVID-19 vaccine if it was administered with payment, while the rest were willing to get vaccinated. Lastly, results showed that almost all participants were willing to receive the vaccine if it was required, with only two participants who said they were not willing to receive the COVID-19 vaccine.

The third objective of the study was to determine the factors affecting the willingness of third-year medical technology students to receive the COVID-19 vaccine. This section was separated into individual and group influences and vaccine-specific influences to extensively assess how these factors affected the participants. There are nine questions included in the questionnaire for individual and group influences. As presented in Table 5, the results showed that out of the ninety-six participants, 20 and 55 (78.1%) students agreed and strongly agreed to receive the vaccine if they tested positive for COVID-19. In line with this, almost all participants are willing to be vaccinated if they stay with a family member who tested positive for COVID-19.

On the contrary, 39 (40.6%) and 19 (19.8%) students disagreed and strongly disagreed with getting the vaccine if they had a bad reaction to a vaccine from their previous vaccination. It is also the same for the 39 (40.6%) and 23 (24%) students who answered disagree and strongly disagree, which indicates that they are not willing to be vaccinated if they know someone whose condition worsened after an immunization. Furthermore, almost all participants strongly agreed that they are willing to be vaccinated if they believe that receiving the vaccine is a preventive measure to avoid acquiring the disease. In connection, 38 (39.6%) and 55 (57.3%) students agreed and strongly agreed that they are willing to be vaccinated if they trust the information found online regarding the safety and efficacy of COVID-19 vaccines. Almost all of the students disagreed and strongly disagreed on the context of whether or not they are willing to receive the vaccine even if they believe it is unnecessary if everyone else is vaccinated. The table also shows that more than half of the participants agreed and strongly agreed that they are willing to receive the vaccine if they know someone who has received one. Furthermore, many participants disagreed and strongly disagreed on the context of whether they will be open to receiving the vaccine even if they do not believe in them if people around them might express judgment.

Four questions are included in the questionnaire for vaccine-specific influences for the next section. Most participants strongly agreed (77.1%) that they are willing to receive a vaccine with high efficacy, while the rest agreed (22.9%). More than half of the participants (60.4%) strongly agreed that they are willing to receive a vaccine with few side effects. Lastly, 32 (33.3%) and 47 (49%) participants agreed and strongly agreed that they are open to receiving a COVID-19 vaccine if they have a preferred design of vaccination programs.

The fourth objective of the study was to determine the correlation between awareness and willingness regarding COVID-19 vaccination using Spearman's rank correlation coefficient. As seen in Table 7, the participants' awareness of the availability of COVID-19 vaccines and their willingness to undergo vaccination when available show a significant correlation (weak positive). In contrast, there is no significant relationship between the participants' awareness of the COVID-19 vaccine priority groups and the efficacy of Pfizer to

their willingness to undergo vaccination. There is also a .230 correlation (weak positive) between the participants' awareness regarding the vaccine EUA and their willingness to be vaccinated when vaccines are made available. Furthermore, a .207 correlation (weak positive) is evident between the participants' awareness of the full vaccine approval of Pfizer by the Philippine FDA and their willingness to be vaccinated when the school administers it. Lastly, there is a .206 correlation (weak positive) between the probable side effects of the COVID-19 vaccine and their willingness to be vaccinated when made available in the Philippines.

5.2 Conclusion

Based on the data gathered, there is a significant weak positive correlation on the following: (1) Awareness of available vaccines in the Philippines and willingness to be vaccinated if generally available in the Philippines, (2) Awareness of the vaccine EUA and willingness to be vaccinated when generally available in the Philippines, (3) Awareness of the Pfizer full FDA approval and willingness to be vaccinated if the school administer it, and (4) Awareness of possible side effects and willingness to be vaccinated when generally available in the Philippines and willingness to be vaccinated if required. It can be deduced that the third-year medical technology students have a high level of awareness regarding COVID-19 vaccination except for the full FDA approval of Pfizer in the Philippines. Lastly, the participants are willing to be vaccinated even if there are factors that could influence their decision. These factors include the individual or group related factors such as testing positive to COVID-19 or staying with family positive to COVID-19 and trusting information online and knowing that people are vaccinated. And vaccine-specific factors such as high efficacy of the vaccine with few side effects and having a preferred vaccination design which includes health center, mass vaccination, or school-based immunization.

5.3 Recommendation

The study only focused on the third-year Medical Technology students of one university. The researchers recommend including more participants in the study, specifically students from other programs and universities who are also participating in limited face-to-face class and/or internship. This will ensure that the data collected will not only represent a certain program or university and thus would allow generalizations to encompass a larger population.

The questionnaire utilized by the researchers was self-made, based on reliable sources and various questionnaires. In targeting a larger population of participants, it is recommended to add and localize questions on awareness regarding COVID-19 vaccination, willingness to receive the COVID-19 vaccine, and factors affecting the willingness to receive the COVID-19 vaccine. This will provide a broader perspective and more comprehensive representation.

The study was only able to assess the correlation between awareness and willingness regarding COVID-19 vaccination. Further correlation between the factors affecting the willingness to receive the COVID-19 vaccine (Individual and Group Influences) and awareness regarding COVID-19 vaccination will yield an intensive conclusion.

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