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Master of Business Administration

**Protection in Facing the Pandemic:  
Measuring the Influencing Factors of Attitude  
and Intention towards Covid-19 Vaccination  
Programs.**

Graduate School of Business Administration  
University of Ulsan, South Korea

Business Administration Major  
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**Protection in Facing the Pandemic:  
Measuring the Influencing Factors of Attitude  
and Intention Towards Covid-19 Vaccination  
Programs.**

Advisor: Professor Kim Doyle

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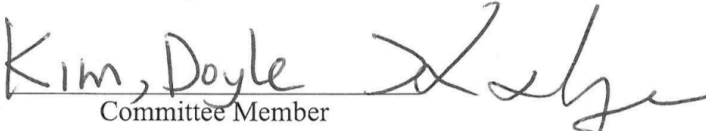
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Influencing Factors of Attitude and Intention Towards Covid-  
19 Vaccination Programs.**

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## ABSTRACT

This study will specifically tackle the ongoing vaccination efforts against the Covid-19 pandemic. The aim is to identify and measure the posited influencing factors that could affect the attitude and intention towards the Covid-19 vaccination programs. This study utilized and expanded the Technology Acceptance Model (TAM), incorporating the Unified Theory of Acceptance and Use of Technology (UTAUT), Protection Motivation Theory (PMT), and Theory of Planned Behavior (TPB) to research and find out the prospective antecedents of vaccination programs. An online survey was conducted and the participants were asked questions regarding constructs such as Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, and Threat Appraisals. The examined target data sets were from 243 respondents who are Filipino citizens. Structural Equation Modeling (SEM) techniques were used to prove the fit of the hypotheses. The results show that the model is supported partially because factors like Effort Expectancy, Facilitating Conditions, and Threat Appraisals did not show any significant effect on Attitude and Intention. However, certain aspects such as Social Influence and Performance Expectancy did indeed have a significant relationship that affects Attitude and in turn have a significant relationship toward Vaccination Intention. Lastly, the empirical results of this study can hopefully provide some reference in improving the implementation of future vaccination programs. Although not all of the factors that were measured in this study proved to be significant, it can serve as a basis to provide a more comprehensive understanding of the influencing factors on vaccinations. It can also aid local governments and medical institutions to manage, execute, and evaluate measures against the pandemic and find ways and strategies to promote vaccination programs to different demographics. The Covid-19 pandemic has affected the whole world regardless of nationality, race, and socio-economic background. Finding ways to improve the perceived usefulness, systems, and policies of these vaccination programs could significantly increase the attitude and behavior intention toward the Covid-19 Vaccine.

## 초록

이 연구는 특히 Covid-19 팬데믹에 대해 진행되고 있는 예방접종 노력을 다룰 것이다. 연구의 목표는 Covid-19 예방접종 프로그램에 대한 태도와 의도에 영향을 미칠 수 있는 영향 요인을 식별하고 측정하는 것이다. 본 연구는 예방접종 프로그램의 선행 사례를 연구하고 찾기 위해 통합기술 수용 및 사용 이론(Unified Theory of Acceptance and Use of Technology, UTAUT), 보호 동기 이론(Protection Motivation Theory, PMT)과 계획 행동 이론(Theory of Planned Behavior, TPB)을 통합한 기술 수용 모델(Technology Acceptance Model, TAM)을 활용하고 확장했다. 온라인 설문조사에서는 참가자들에게 성과 기대, 노력 기대, 사회적 영향력, 촉진 조건, 위협 평가와 같은 개념에 대한 질문을 했다. 조사된 대상 데이터는 필리핀 시민 243 명의 응답자로부터 나왔다. 구조 방정식 모델링(Structural Equation Modeling, SEM) 기법이 가설의 검정을 위해 사용되었다. 결과는 작업 기대, 진행 조건 및 위협 평가와 같은 요인이 태도 및 의도에 유의미한 영향을 주지 않아서 적용 모델이 부분적으로 입증된다는 것을 보여준다. 그러나 사회적 영향과 성과 기대치와 같은 특정 측면은 태도에 유의한 영향을 미쳤었고, 결국 예방접종 의도에도 영향을 미쳤다. 마지막으로, 이 연구의 실증적 결과는 미래의 예방접종 프로그램의 실행을 개선하는 데 참고 자료를 제공할 수 있기를 바란다. 본 연구에서 측정한 모든 요인들이 유의한 것은 아니지만, 예방접종에 미치는 영향요인을 보다 포괄적으로 이해할 수 있는 근거가 될 수 있다. 또한 지방 정부와 의료 기관이 전염병에 대한 대책을 관리, 실행, 평가하는데 도움을 줄 수 있고 백신 접종 프로그램을 다양한 인구 통계로 홍보하는 방법과 전략을 찾을 수 있도록 지원할 수 있다. Covid-19 팬데믹은 국적, 인종, 사회경제적 배경에 관계없이 전 세계에 영향을 미쳤다. 이러한 예방접종 프로그램의 인식된 유용성, 시스템 및 정책을 개선하는 방법을 찾는 것은 Covid-19 백신에 대한 태도와 행동 의도를 크게 증가시킬 수 있다.

## TABLE OF CONTENTS

I. Introduction.....	1
Background and Purpose of the Study.....	1
Organization of the Thesis.....	4
II. Literature Review.....	6
TAM and UTAUT Model.....	6
Protection Motivation Theory.....	7
Theory on Planned Behavior.....	8
Research Model.....	10
III. Research Hypotheses .....	11
Performance Expectancy, Effort Expectancy (H <sub>1</sub> , H <sub>2</sub> ).....	11
Social Influence (H <sub>3</sub> , H <sub>4</sub> , H <sub>5</sub> ).....	12
Facilitating Conditions (H <sub>6</sub> ) .....	14
Threat Appraisals (H <sub>7</sub> , H <sub>8</sub> ).....	15
User Attitude and Intention toward Vaccination (H <sub>9</sub> ).....	16
IV. Methodology.....	17
Sampling.....	17
Measurement.....	18
Exploratory Factor Analysis.....	20
Confirmatory Factor Analysis.....	21
Hypothesis Testing.....	23
V. Conclusion.....	25
Discussion and Implications.....	25
Limitations and Future Research.....	27
References.....	28
Appendix.....	38
Survey Questionnaire for Data Collection.....	38



## **LIST OF TABLES**

Table 1. Sample Profile.....	18
Table 2. Measurement Items.....	19
Table 3. Results of Exploratory Factor Analysis.....	20
Table 4. Results of Confirmatory Factor Analysis .....	22
Table 5. AVE and Correlation Matrix .....	23
Table 6. Results of Research Model... ..	24

## **LIST OF FIGURES**

Figure 1. Research Flow.....	5
Figure 2. Technology Acceptance Model.....	6
Figure 3. Research Model.....	10
Figure 4. CFA Standardized Regression Estimates.....	21
Figure 5. Structural Equation Modeling.....	24

# CHAPTER 1

## INTRODUCTION

### **Background and Purpose of the Study**

Deadly diseases, epidemics, and pandemics have struck the human race all throughout history. It is believed that in the coming decades, another global pandemic may come and will halt humanity. The past and present pandemics should be taken into account to provide insight in preparation for what the future may hold. Smallpox, HIV, SARS, H1N1, and countless other deadly diseases have and are still affecting us to this day. According to the World Health Organization (2021), the Covid-19 disease has infected over 242 million people and taken the lives of almost 5 million individuals. Although vaccines have already been developed, there is still a long way to go before things get back to normal. In fact, some argue that things will never go back to pre-pandemic status. The “new normal” will be how we operate living with the pandemic.

The Covid-19 Pandemic started in December 2019, it is derived from severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). This pandemic has severely affected all the countries in the world regardless of their socio-economic and behavioral disposition. Vaccinations are one of the solutions to end this pandemic. In research from Plotkin (1988), vaccinations have a very big impact on health on a global scale. Aside from safe drinking water, there is no other modality that has a greater effect on the reduction of mortality and population growth. As defined by the World Health Organization (2021), vaccines are simple, safe, and effective in protecting us from dangerous diseases. It is a prevention method if you are in contact with someone who is infected. Although vaccination programs are already in place, only around 6.8 billion doses (of at least the first dose) have been administered. Ongoing active vaccination efforts are seeing an average of 24.37 million doses administered each day and it is important to note that only 3% of people in low-income countries have received at least one dose of the vaccine (OCHA, 2021). Although government bodies and medical institutions have made a great deal of effort in carrying out vaccination programs, there

are still a lot of people who are hesitant to get vaccinated. These governments and medical institutions should make plans and strategies to promote vaccination programs once there is a sufficient supply of the Covid-19 vaccine. Acceptance and adoption of the Vaccines can be equally as important as the vaccine itself.

A study by Solísarce et al. (2021) reviewed the Covid-19 hesitance and acceptance in low and middle-income countries in comparison to Russia and the United States. Key findings were that altruistic behavior and pro-social motivations were key drivers in promoting vaccination acceptance. Also, the respondents emphasized the potential risks and benefits to personal wellbeing as an important factor to get vaccinated. The study did not find any significant relationship with regard to age, education, and socio-economic status. Potential resistance towards the vaccine could be due to the heavy politicization of the pandemic and expedited vaccine development could lead to vaccine skepticism (Åslund, 2020; Hornsey et al., 2020). The utilization of rewards such as cash incentives, store discounts, and freebies was also effective in low-income countries (Banerjee et al., 2010).

There are several factors that could affect the acceptance of vaccines. Each country has its own culture, religion, access to information, and financial capability. These factors could cause differences in the way vaccination programs are carried out and accepted in each location. According to a regional situation analysis report by the World Health Organization (2021), more than 1.3 billion vaccine doses have been administered in the Southeast Asian region. Despite vaccine shortages, humanitarian and relief efforts have been mobilized to at least give vaccines to healthcare workers, frontliners, and senior citizens. Over 74 million people in the Southeast Asian region are over the age of 60 and are prioritized in getting vaccinated. Quick and effective vaccination efforts must be made to protect these vulnerable groups, maintain healthcare capacity, and most importantly save lives.

In the Philippines, there is difficulty in achieving the ideal coverage rates for the Covid-19 Vaccines due to several factors. There is still some hesitancy in getting the vaccine because of insufficient government support as well as some hesitancy from its citizens. There are some pro and anti-vaccine movements that stem from conservative religious groups as well as a lack of proper information and education, especially in

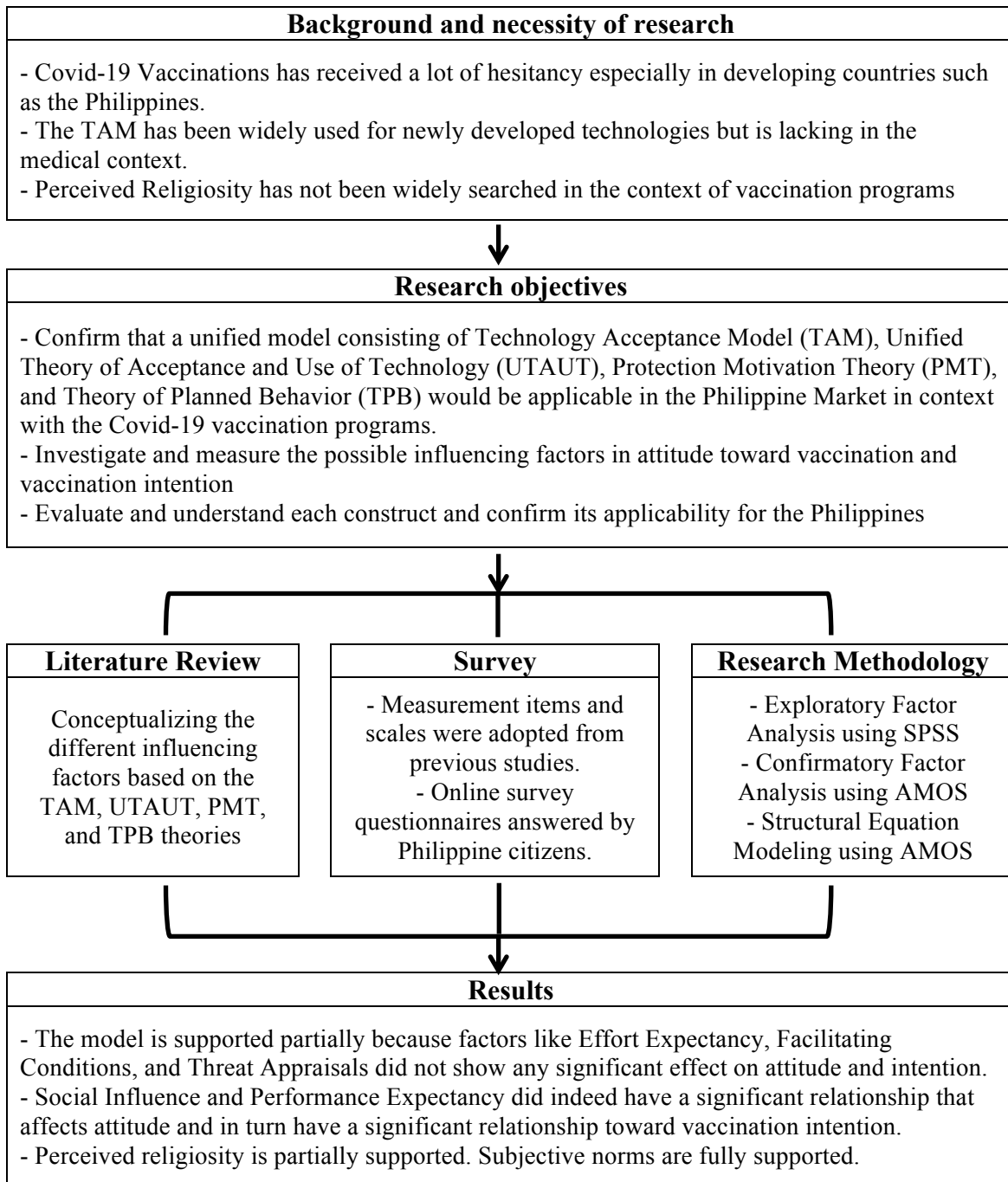
underdeveloped areas. This study will primarily focus on the citizens of the Philippines, as it is a developing country in which the vaccination efforts are insufficient and the possible influence of religion and government support may come into play as a factor. Just in the month of September 2021 alone, the Philippines have dealt with 131,515 new cases (an overall total of 2,121,254 cases) and 1,050 deaths (overall total of 34,498), which is far higher than its Southeast Asian counterparts (WHO, 2021).

According to a report by the Asian Development Bank (2021), the Philippines loaned around \$400 million to purchase the Covid-19 vaccines, and the Philippine government shoulders this cost. However, the country already has billions of dollars in foreign debt and the only way to pay off this debt is to tax its citizens. With the loan, it is expected that a sufficient supply of Vaccination can be disseminated to the entire Philippine population. Although the supply of the vaccine and support from the government is improving there is still some hesitancy. Numerous new studies have tried to investigate some contributing factors with regard to the hesitancy in participating in vaccination programs. In a study by Vergara (2021), he considered social trauma as an important factor in vaccine hesitancy and how governments should overcome this to gain public trust. This study cited some of the Philippine government's shortcomings with the vaccination programs. An example is the promotion of the Dengvaxia vaccine to combat the Dengue virus but unfortunately, that vaccine took the lives of over 600 infants and small children, and no vaccine manufacturer or government official was held accountable for these deaths. Furthermore, the Philippine government is strengthening its ties with China as the majority of the vaccines purchased and distributed are from the Sinovac brand, which is a Chinese manufactured vaccine. This has led to some doubts regarding the efficacy of the Chinese-made vaccine. Reducing vaccine hesitancy in the country would be challenging as transparency and building trust is necessary. Moreover, the government should address controversies such as vaccine prioritization, smuggling of vaccines, and selective vaccinations. This study will go on a different approach and rather investigate the influencing factors toward vaccination rather than the vaccine hesitancy.

Given the situation with the Covid-19 pandemic, this study aims to give some contribution in knowing the possible antecedents of vaccinations. Hopefully, some of the findings can assist medical institutions and governments to know the key drivers and utilize them to actively promote vaccination programs. The purpose of this study is to identify and measure the possible influencing factors that could affect attitude and in turn intention towards vaccination programs to fight against the Covid-19 pandemic. Another goal is to confirm whether a unified model consisting of the Technology Acceptance Model, Unified Theory of Acceptance and Use of Technology, Protection Motivation Theory, and Theory of Planned Behavior would be applicable in the Philippine market within the context of the Covid-19 vaccination programs.

### **Organization of the thesis**

This study is organized into five parts, which are the introduction, literature review, research hypotheses, methodology, and conclusion. The beginning of this paper includes the background study pertaining to the Covid-19 pandemic as well as the purpose of the study and structure of the paper, which is presented in Figure 1. The second part is the literature review that talks about 4 different theories that are used to measure the influencing factors. These theories are used in previous studies in the context of the medical field and will be unified in one research model. The third part is the formulation of the hypotheses by explaining the different constructs that could affect attitude and intention towards vaccinations. The fourth part is the methodology in doing the research as well as conducting Exploratory Factor Analysis, Confirmatory Factory Analysis, and Structural Equation Modeling using SPSS and AMOS programs. Finally, the last section is the conclusion of the results as well as limitations of the study and recommendations for further research.



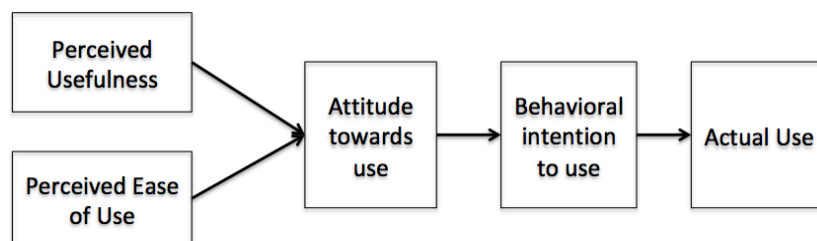
**Figure 1. Research flow**

## CHAPTER 2

### LITERATURE REVIEW

#### TAM and UTAUT Model

There are a number of past researches analyzing the influencing factors involving health systems and vaccinations to combat deadly diseases that have affected mankind in the past (Holden & Karsh, 2010; Kurniasih et al., 2020; Offeddu et al., 2019). A widely used research model utilized is the Technology Acceptance Model (TAM). This model is one of the most commonly used frameworks for new technologies where the behavioral intentions from the perspective of the user are assessed. The primary variables in the motivation of users are Perceived Ease of Use, Perceived Usefulness, and Attitude toward the technology. In this model, the principal determinants of behavioral intention are Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) (Davis, 1989). However, since this study focuses on vaccines, PEOU will be substituted by the ease of use of the vaccine program registration system rather than the vaccine injection itself.



**Figure 2. Technology Acceptance Model TAM (Davis, 1989).**

With regard to the medical field, there are certain key elements that are missing from the TAM Model. In an effort to expand the Technology Acceptance Model, this study will apply the Unified Theory of Acceptance and Use of Technology (UTAUT) developed by Venkatesh et al. (2003). There are 4 main constructs in their model, which are Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating

Conditions. This study posits that these influencing variables will have an effect on the users' attitudes and behavior intention. Ammenwerth (2019) analyzed the usefulness of TAM and UTAUT in the health care setting and was successful in predicting health technology adoption. However, recent reviews of the study did not provide stable predictive competency for acceptance and use of healthcare technology. It is possible that the healthcare industry is too broad and each medical situation differs not only on the technology itself but socio-economic and cultural factors could also play a role in influencing technology acceptance.

Additional theories such as the Theory of Planned Behavior (TPB) and the Protection Motivation Theory (PMT) will also be incorporated in the research model in order to have a more holistic view of the possible influencing factors toward Vaccination Programs. This study will utilize a unified model that incorporates the aforementioned theories that can measure the adoption intention of Covid-19 Vaccination Programs.

### **Protection Motivation Theory**

One of the most widely used and acknowledged expectancy theories that can explain fear appeals on attitude change is the Protection Motivation Theory (PMT). There are multiple recent studies that have utilized the Protection Motivation Theory with regard to vaccinations (Camerini et al., 2019; Chen et al., 2021; Eberhardt & Ling, 2021; Huang et al., 2021).

PMT has two main determinants for fear appeals, which are coping appraisals and threat appraisals. Coping appraisals are defined as the extent to which the possible threats can be coped with by adopting behaviors to combat against and respond to the situation (Rogers, 1975). The coping appraisals in the vaccination context will be linked to the facilitating conditions in the UTAUT model. The threat appraisals in PMT emphasize that fear is an influential factor for change in behavioral intention (Rogers, 1975). Fear occurs especially for newly developed technologies as it is still unexplored and long-term effects are yet to be discovered. Fear can also be interpreted as threats



that can either prevent or persuade a person towards vaccination. This study attempts to appraise certain factors that invoke threats such as Perceived Vulnerability and Perceived Severity (Ansari-Moghaddam et al., 2021).

Chen et al. (2021) suggest that perceived knowledge plays a part in influencing coping and threat appraisals. Even though there exists data that support the safety and effectiveness of the vaccines, regardless of the brand, there is still some uncertainty with the side effects and how severe they could be. Another concern highlighted by the study is that preventive measures and behaviors are vital to reduce the risk. Even though the person itself can strive to do proactive ways in reducing the risk to get infected, the government still has a bigger and more impactful role in preventing the spread of the disease. A study by Camerini et al. (2019) explained the usefulness of activating the role of coping and threat appraisal mechanism in the context of social attitudes and social norms. They suggest that public health institutions should actively communicate and highlight the altruistic features of vaccination programs and that it could promote herd immunity of the general public. Another study by Eberhardt and Ling (2021) discussed the application of PMT and conspiracy beliefs. The study suggested that unvaccinated people tend to believe more in conspiracy theories and “fake news” when it comes to threats to their health and deterrents in coping with the virus. Kim et al. (2020) studied the mediating role of perceived threats during times of severe crisis and whether it could affect a user’s decision and behavior toward the Covid-19 pandemic. The study implies that policymakers and organizers could influence users by either increasing or decreasing the perceived threat level depending on the situation. The Protection Motivation Theory can be a useful framework and tool to persuade users to get vaccinated.

### **Theory of Planned Behavior**

Another expectancy theory that is applicable for vaccination programs is the Theory of Planned Behavior (TPB). According to this theory, the TPB intentions are what drive behavior, which is determined by Attitude, Social Influences, and Perceived Behavioral Control (Ajzen, 1985). The attitudes are derived from the user’s cognitive

and affective evaluation and will invoke either a positive or negative behavior. The social influences in this study will be broken down into subjective norms, perceived religiosity, and electronic word-of-mouth. The Perceived Behavioral Control will be interpreted as the Facilitating Conditions of the vaccination programs. The facilitating conditions are factors that measure how confident a user will be and it is based on the response costs as well as the underlying costs of getting vaccinated. Since most of the Covid-19 vaccines are free and supported by the respective governments, this study will focus on the attitude of users toward government support. A study by Myers and Goodwin (2011) used the TPB framework to predict the users' intention in receiving the swine flu vaccination. The research suggested that TPB is useful in identifying and understanding determinants that could influence the decision to get vaccinated. However, the Covid-19 pandemic is much more serious and has affected more people compared to its predecessors. Knowing if the TPB framework would be useful in measuring the antecedents of vaccination in the context of the Covid-19 pandemic could provide more insight for medical institutions to maximize the uptake of vaccines.

A deeper understanding of behavioral intention in the context of vaccination should not only be seen in the perspective of technology acceptance but also the health behavior perspective as well. That is why this study attempts to unify different theories as they can be utilized in explaining the acceptance behavior for health technologies. This study aims to know whether integrating the theories into a unified framework would be more effective compared to applying each theory separately. The utilization and application of these theories in the context of vaccination have not been made before, so it is the intention of this study to know whether or not a unified model would be more effective.

This study utilizes a unified model that incorporates the aforementioned theories that can measure the adoption intention of Covid-19 vaccination programs. The purpose of this study is to utilize and expand the Technology Acceptance Model, incorporating the Unified Theory of Acceptance and Use of Technology, Protection Motivation Theory, and Theory of Planned Behavior to research and find out the prospective antecedents of Vaccination Programs. There will be 5 main influencing factors that will be measured in relation to attitude and intention toward Covid-19 vaccination. These are

Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, and Threat Appraisals. The goal is to find out whether the above-mentioned constructs affect the attitude and intention to get vaccinated. These findings may provide insights into how vaccination programs can be more effectively executed to combat the pandemic.

### Research Model

Based on the abovementioned theories discussed, the research model was developed and is presented in Figure 2. The developed model was derived from the study conducted by Chen et al. (2018), which proposed 5 main influencing factors to behavior intention of medical services. The first part of the model is the antecedents of attitude towards vaccinations. The latter part of the model shows the consequence of attitude, which in this study is vaccination intention. The hypotheses and explanation of the constructs will be explained in the next section.

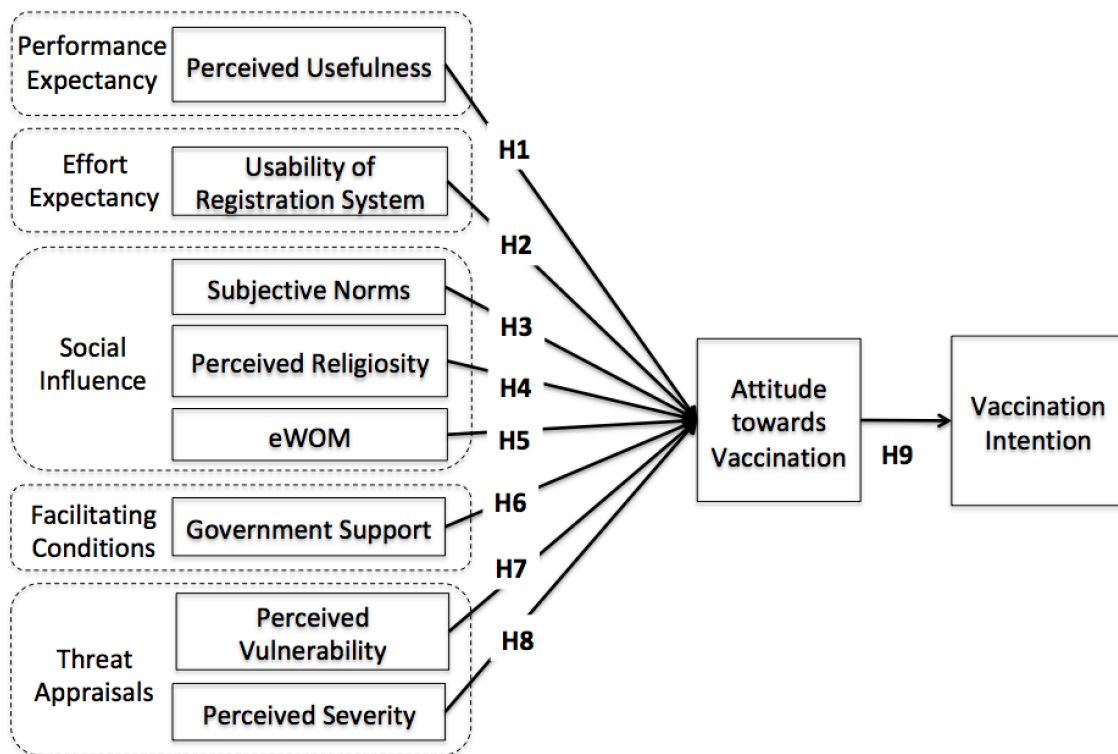


Figure 3. Research Model

## CHAPTER 3

### RESEARCH HYPOTHESES

#### Performance Expectancy and Effort Expectancy

The term Performance Expectancy was adopted to refer to the user's opinion about the effectiveness of the technology, and the term Effort Expectancy refers to the ease of using the system (Venkatesh et al., 2003). Based on TAM developed by Davis (1989), perceived usefulness is defined as the level or degree to which a user thinks a particular system would enhance his or her own performance. In addition, the perceived ease of use is referred to as the degree of utilizing a particular system free of any great effort or difficulty.

According to Venkatesh et al. (2003), Performance Expectancy is rooted in Perceived Usefulness, and Effort Expectancy can be derived from the Perceived Ease of Use of the Technology Acceptance Model. In the case of vaccinations programs, the perceived usefulness could be posited as the performance expectancy of vaccination while the perceived ease of use will be in the perspective of the usability of registration systems in getting the vaccination. When users consider getting the Covid-19 vaccine, this study aims to know if they will think that the vaccine efficacy can reduce threats against their health and if the current registration systems are efficient and will therefore develop a favorable attitude towards vaccinations. Thus, hypotheses 1 and 2 are proposed as follows

**H<sub>1</sub>:** Perceived Usefulness (PU) will have a positive influence on attitude toward the Covid-19 Vaccine.

**H<sub>2</sub>:** Usability of Registration Systems (RS) will have a positive influence on attitude toward the Covid-19 Vaccine.

## **Social Influence**

In the UTAUT model of Vankatesh et al. (2003), social influence is defined as the degree to which an individual thinks or perceives the important and influential people in their lives who believe in using the new technology. According to a study by Thompson et al. (1991), social factors can be referred to as a person's internalization of a subjective culture of a reference group, and in particular, the personal agreements and understandings the person has made with others in a specific social setting. When talking about subjective culture, it consists of the norms, roles, and values of a reference group. Norms are the self-motivation to follow or do what is thought to be appropriate by members of the culture in specific situations. Particularly, social activities such as traveling, gatherings, and meetings with friends and family have been restricted or limited to a degree due to the Covid-19 pandemic. Almost all countries have their own policies regarding lockdowns and social distancing protocols. Most social groups, offices, government institutions have accepted and implemented these kinds of policies. These groups can also dictate the social norms and that vaccination, although not mandatory, can be a conduit for discrimination against people who do not want to get vaccinated. Social influences can be defined as subjective norms in which people want to conform, comply, and identify with a certain social group. Roles can be defined as a person's position in a social group and the appropriate behavior that specific position entails while values are the intangible affective components. In this study, the social influence construct is divided into Subjective Norms, Perceived Religiosity, and electronic word-of-mouth (eWOM).

The world has a plethora of diverse and different cultures that could indicate different levels of acceptance toward vaccines. Specifically in the Philippines, not only are subjective norms considered to be influential but also religion and the use of social media will be posited to impact a person's attitude toward vaccinations. With regard to Perceived Religiosity, previous researches have also tackled the role of religion in the acceptance of vaccines (Faturohman et al., 2021; Kanozia & Arya, 2021). Based on data provided by Gallup International (2017), it showed that the Philippines is one of the

most religious countries in the world where 90% of the country is declared to be religious. Delcastillo et al. (2020) reviewed the role of the Roman Catholic Church and its initiative in providing assistance during times of public health crises and emergencies in the Philippines. Based on the results of the Veritas Truth Survey (2020), approximately 9 out of 10 Filipinos believe that faith has an important role in fighting against the Covid-19 virus and that fear can be conquered using faith. The role of religion is found to be used as a positive coping mechanism in facing challenges triggered by the pandemic (Edara et al., 2021). The leader of the Roman Catholic Church, Pope Francis has been very vocal and actively promotes vaccination stations by stating “Vaccines are an act of love”. Additionally, Pope Francis and Pope Emeritus Benedict XVI were vaccinated publicly on the 13<sup>th</sup> of January 2021 (The Vatican, 2021). The Catholic Church is a powerful and influential institution not just spiritually but in promoting public health as well through the promotion of vaccinations. Thus, it is posited that perceived religiosity could be an influential factor in attitude toward vaccinations.

The role of electronic word-of-mouth (eWOM) and true information is very critical in modern society. Most people can access the Internet and search for information about the pandemic and vaccines. However, there is contrasting information and sometimes the reliability of the news source is questionable. A study conducted by Trigg (2011), discussed the effects of eWOM in the medical field, specifically the evaluation of medical care quality. Even with this study, there is still a research gap on the eWOM implications to vaccination programs especially about information disseminated about Covid-19 and the vaccines. Specifically, the long-term effects, necessity to do booster shots, accurate efficacy rate, and much more are yet to be studied within the context of eWOM. Although previous research has been conducted regarding the influence of eWOM, the situation appears to be getting worse as some social media sites and online news portals have been considered “fake news” (Grady et al., 2021; Kanozia & Arya, 2021; Montagni et al., 2021; Petit et al., 2021).

There is both positive and negative electronic word-of-mouth in the context of vaccination programs. However, previous studies suggested that negative word-of-mouth has a stronger impact than positive word-of-mouth and that negative information

is much more pervasive even if it is refuted (Arndt, 1967; Weinberger et al., 1981; López & Sicilia, 2011; Hersetyawati, 2021). Taking into account the discussion of the different possible social factors, it is proposed that

**H<sub>3</sub>:** Subjective Norms (SN) will have a positive influence on attitude toward the Covid-19 Vaccine.

**H<sub>4</sub>:** Perceived Religiosity (PR) will have a positive influence on attitude toward the Covid-19 Vaccine.

**H<sub>5</sub>:** eWOM (EW) will have a negative influence on attitude toward the Covid-19 Vaccine.

### **Facilitating Conditions**

In the Theory of Planned Behavior (TPB), perceived behavioral control is described as the condition that could potentially facilitate or even constrain the behavioral intention (Ajzen, 1985). This description could also be applied to facilitating conditions. In a study by Gagnon et al. (2008), these conditions represent the simple and practical factors that can make the realization of a behavior easy to do. In research from Efiloglu and Tingoy (2017), facilitation conditions are defined as a person's belief in the presence of an essential organizational or technical infrastructure for facilitating the use of a certain system. In the context of the vaccination systems, the facilitating conditions are factors that can expedite the vaccination programs. It can be based on the response costs as well as the underlying costs of getting vaccinated. Most governments already provide free vaccination programs to their citizens. Thus, this study will look at the underlying costs and if the country's government can accommodate and support these costs. However, there is some discussion on the Philippine government's insufficient support toward the Covid-19 vaccination programs. In order to verify the significance of Government Support, it is posited that

**H<sub>6</sub>:** Government Support (GS) will have a positive influence on attitude toward the Covid-19 Vaccine.

## **Threat Appraisals**

The broadened Motivation Theory developed by Deci and Ryan (1985), discussed that the intrinsic motivation of an individual is driven by needs. However, it is not specified where the needs arose from and what was the actual root cause. There are two determinants of threat appraisals based on the Protection Motivation Theory (Rogers, 1975), namely the Perceived Severity and Perceived Vulnerability. In the context of health, Perceived Vulnerability is the person's belief about the probability of having or developing some form of health risks such as negative side effects or adverse reactions. Perceived Severity is the negative repercussion or consequences a person can identify with a specific outcome, diagnosis, or event. Vaccines have already been developed to prevent existing diseases. However, there is still some hesitancy from some people in getting them. In past studies about the H1N1 vaccine that occurred in 2009, there was a tremendous overestimation of the side effects of that vaccine which caused some doubt and hesitance in getting that vaccine (Chor et al., 2011). Also, the H1N1 pandemic was resolved in 2010, which made the demand for the vaccine unnecessary and indeed reduced the perceived risk. The presence of certain Covid-19 variants, lockdowns, and outbreaks have gotten people on edge and made them prone to think more about the perceived risks. The new variants have increased the risk of getting the virus especially for the children and elderly. Also, people are getting used to this “new normal” and have accepted the situation of wearing masks and receiving daily news of infected cases. People are now getting desensitized from this pandemic as time goes by that could lessen the perceived risks. In the research from Slovic (1987), perceived risks decrease when there is exposure for a long time because of habituation. The “hot-cold empathy gap” also explains the underestimation of emotion in decision-making but overestimates focusing on information that is objective. Too much emotion can hinder sound decision-making (Loewenstein, 2005). This study will refer to Perceived Severity and Perceived Vulnerability as the possible threat appraisals against the Covid-19 Vaccinations. Thus, these threat appraisals can be hypothesized as



**H<sub>7</sub>:** Perceived Vulnerability (PV) will have a negative influence on attitude toward the Covid-19 Vaccine.

**H<sub>8</sub>:** Perceived Severity (PS) will have a negative influence on attitude toward the Covid-19 Vaccine.

### **User Attitude and Intention towards Vaccination**

In the Theory of Planned Behavior developed by Ajzen (1991), Attitude was explained to be the level or degree to which an individual has either a favorable or unfavorable evaluation of the behavior in question. Additionally, Behavior Intention is defined as the individual's willingness to try as well as the amount of effort planned to be exerted to do the behavior. Based on TAM, both the Perceived Usefulness and Perceived Ease of Use can influence an individual's attitude toward using a system or technology and in turn, the said attitude strongly influences the intention of using the technology or system (Davis, 1989). In the research from Bennett and Harrell (1975), the overall confidence and attitude have a direct relationship with behavioral intention. Within the context of vaccination programs, it is inferred that prospective vaccine users' positive attitudes towards vaccination programs can be directly related to user intention. Thus, it is proposed that

**H<sub>9</sub>:** Attitude (ATTD) will have a positive influence toward Vaccination Intention (AI) of the Covid-19 Vaccine.

## CHAPTER 4

### METHODOLOGY

#### Sampling

An online survey was conducted using Microsoft online forms. The targets of the study are Filipino citizens who are eligible to get vaccinated. These are the people who have no allergies and preexisting conditions that would hinder them from getting the vaccine. A total of 243 responses were obtained, all of which are citizens of the Philippines. However, 8 responses were excluded from the study due to incomplete replies. 235 responses were used in estimating the proposed research model.

In table 1, the profile of the sample is presented. 54.5% of the total respondents are female and 45.5% are male. For the age, one respondent is under 18 years old (0.4%), 91 people are between 18 and 30 years old (38.7%), 114 people are between 30 to 45 years old (48.5%), and 29 people are over than 45 years old (12.3%). For the education background, 13 (5.5%) have education below a bachelor's degree, 168 (71.5%) have a bachelor's degree, and 54 (23%) have graduate degrees. For religion, the majority of respondents claimed to have some form of faith with 187 (79.6%) being Catholic, 34 (14.5%) are Christian, 2 (0.9%) had other forms of faith, while 12 (5.1%) do not associate with any religion. For the family income, the Philippine family income has been grouped into 7 clusters (PSA, 2020). 34 (14.5%) are considered poor, 13 (5.5%) are low income. The majority of the respondents are middle class with 61 (26%) being lower-middle-income, 79 (33.6%) as middle-middle-income, and 31 (13.2%) as upper-middle-income. 12 (5.1%) are upper income and 5 (2.1%) are considered to be rich. With regard to past vaccination experience, 225 (95.7%) claimed to be vaccinated before while 10 (4.3%) were not. And for the Covid-19 Vaccine, 224 (95.3%) said they were already vaccinated, while 11 (4.7%) are not yet vaccinated.

**Table 1. Sample Profile**

<b>Demographic Value</b>		<b>Frequency</b>	<b>%</b>
<b>Nationality</b>	Filipino	235	100%
<b>Sex</b>	Male	107	45.5%
	Female	128	54.5%
<b>Age</b>	Under 18 years old	1	0.4%
	18 - less than 30 years old	91	38.7%
	30-less than 45 years old	114	48.5%
	45 years old or over	29	12.3%
<b>Education</b>	Under bachelor	13	5.5%
	Bachelor's Degree	168	71.5%
	Graduate Degree	54	23.0%
<b>Employment Status</b>	Student	18	7.7%
	Employed	192	81.7%
	Unemployed	25	10.6%
<b>Religion</b>	Catholic	187	79.6%
	Christian	34	14.5%
	None	12	5.1%
	Others	2	0.9%
<b>Monthly Income</b>	Poor: No income/Less than Php 9,520	34	14.5%
	Low income: Php 9,520 to Php 21,194	13	5.5%
	Lower-Middle-Income Php 21,194 to Php 43,828	61	26.0%
	Middle-Middle-Income: Php 43,828 to Php 76,669	79	33.6%
	Upper-Middle-Income Php 76,669 to Php 131,484	31	13.2%
	Upper income Php 131,484 to Php 219,140	12	5.1%
	Rich: Php 219,140 and up	5	2.1%
<b>Had other vaccines in the past</b>	Yes	225	95.7%
	No	10	4.3%
<b>Already got the Covid-19 Vaccine</b>	Yes	224	95.3%
	No	11	4.7%

## Measurement

The online survey questionnaire was developed based on the literature review and design of the hypotheses. There are 10 constructs in the questionnaire, which are Intention, Attitude, Perceived Usefulness, Usability of Registration System, Subjective Norms, Perceived Religiosity, eWOM, Government Support, Perceived Vulnerability, and Perceived Severity. A 5-point Likert scale (1=strongly disagree; 5=strongly agree) was utilized to measure the opinions of the respondents. The items for Intention, Attitude, and Subjective Norms were adapted from Myers and Goodwin (2011). The

items for Perceived Usefulness and Government Systems were derived from Martin and Petrie (2017). Usability of Registration System scales was adapted from Akter et al. (2010). Perceived Religiosity scales were adapted from Koenig and Büssing (2010) while eWOM scales were adapted from Hennig-Thurau et al. (2004). Finally, the scales for Perceived Vulnerability and Perceived Severity were based on De Zwart et al. (2009). A total of 28 items were included and all measurement items are described in Table 2.

**Table 2. Measurement Item**

<b>Constructs</b>	<b>Code</b>	<b>Instrument</b>
<b>Intention</b>	AI1	I am willing to get vaccinated to protect me from Covid-19.
	AI2	I am willing to get vaccinated that has a high efficacy rate.
<b>Attitude</b>	ATTD1	Using vaccines is a bad/good idea.
	ATTD2	Using vaccines is a foolish/wise idea.
	ATTD3	I dislike/like the idea of using vaccines.
<b>Perceived Usefulness</b>	PU1	I feel safer and can continue to study/work/travel if I get vaccinated
	PU2	I can protect my family and loved ones from getting the virus if I am vaccinated
	PU3	I will get vaccinated to get proper clearance documentation
<b>Usability of Registration System</b>	RS1	It is easy for me to register for the vaccination programs
	RS2	Using the website/app to register for vaccination is easy.
	RS3	I think the lines for the vaccine and the processing is simple
<b>Subjective Norms</b>	SN1	People who are influential to me think that I should get vaccinated to prevent Covid-19.
	SN2	People who are important to me think that I should get vaccinated to prevent Covid-19.
<b>Perceived Religiosity</b>	PR1	My religion/beliefs influence my life decisions.
	PR2	I consult regularly with our religious leaders/elders
	PR3	I regularly attend religious activities.
<b>eWOM</b>	EW1	I usually follow social media and news sites for vaccine updates
	EW2	I discuss with my family and friends online regarding vaccine updates
	EW3	I get notifications and share any news about the vaccine programs
<b>Government Support</b>	GS1	My country's government provides free vaccination services
	GS2	Our government provides adequate health insurance if negative side effects occur.
	GS3	Our government has capabilities and policies to handle the Covid-19 pandemic.
<b>Perceived Vulnerability</b>	PV1	I think I am at risk of getting Covid-19.
	PV2	Even with the vaccine, it is likely that I will get Covid-19.
	PV3	My pre-existing conditions make it easy for me to get Covid-19.
<b>Perceived Severity</b>	PS1	If I get Covid-19, I am afraid it will be severe. It will be very dangerous and life threatening.
	PS2	If I get Covid-19, I am afraid it will be serious. I will have very bad side effects.
	PS3	If I get Covid-19, my life will be affected significantly. My life will change drastically.

## Exploratory Factor Analysis (EFA)

The factor loadings results are presented in Table 3. Based on the results, the factor loadings in the EFA are acceptable. The cronbach's alpha coefficients ranged from 0.6 to 0.9, which are within the acceptable parameters and suggest internal consistency.

**Table 3. Results of Exploratory Factor Analysis (EFA)**

Items	Factor Loadings										Cronbach's Alpha	Eigenvalue	Cumulative %
	1	2	3	4	5	6	7	8	9	10			
AI1	0.044	0.111	0.012	0.127	0.003	0.140	0.006	<b>0.883</b>	0.003	0.088	0.811	1.782	9.262
AI2	0.059	0.086	0.036	-0.022	-0.047	0.087	0.021	<b>0.891</b>	-0.058	0.038			
ATTD1	0.107	0.290	0.001	0.151	-0.117	<b>0.597</b>	-0.154	0.147	0.032	0.286	0.693	1.934	18.362
ATTD2	0.034	0.061	-0.023	0.030	0.115	<b>0.862</b>	0.146	0.003	-0.042	0.048			
ATTD3	0.100	0.257	0.104	-0.025	0.180	<b>0.718</b>	-0.039	0.211	-0.006	0.112			
PU1	0.135	<b>0.838</b>	0.047	0.023	0.034	0.168	0.019	0.043	-0.023	0.106	0.852	2.548	27.103
PU2	0.114	<b>0.930</b>	0.017	0.072	0.011	0.150	0.039	0.042	0.022	0.059			
PU3	0.139	<b>0.763</b>	-0.071	0.067	0.074	0.086	0.087	0.125	0.125	0.091			
RS1	<b>0.788</b>	0.027	-0.027	-0.003	0.080	0.160	0.214	0.052	0.045	-0.036	0.900	2.593	35.381
RS2	<b>0.931</b>	0.205	0.010	0.084	0.058	0.027	0.079	0.016	-0.088	0.059			
RS3	<b>0.915</b>	0.210	0.004	0.108	0.049	0.000	0.068	0.051	-0.074	0.076			
SN1	-0.013	0.132	-0.003	0.159	0.129	0.063	0.025	0.040	0.025	<b>0.866</b>	0.684	1.592	42.945
SN2	0.132	0.149	0.090	0.211	0.030	0.325	-0.023	0.113	0.059	<b>0.716</b>			
PR1	0.075	0.030	-0.163	0.015	<b>0.731</b>	-0.028	0.134	0.015	-0.045	0.254	0.755	2.118	49.853
PR2	0.061	-0.002	0.043	-0.061	<b>0.846</b>	0.109	-0.045	0.007	0.081	0.022			
PR3	0.036	0.083	0.020	0.089	<b>0.846</b>	0.093	0.049	-0.063	0.053	-0.077			
EW1	0.071	0.055	0.090	<b>0.826</b>	-0.017	0.027	-0.039	0.018	0.044	0.084	0.815	2.318	56.619
EW2	-0.003	-0.062	0.048	<b>0.794</b>	-0.017	0.054	-0.016	0.149	0.137	0.273			
EW3	0.085	0.152	0.058	<b>0.870</b>	0.074	0.021	-0.034	0.007	0.005	0.017			
GS1	0.300	-0.118	-0.062	-0.077	-0.015	0.220	<b>0.434</b>	0.202	0.293	0.121	0.692	1.894	62.982
GS2	0.094	0.097	0.026	0.041	0.044	0.010	<b>0.891</b>	-0.002	-0.035	0.017			
GS3	0.163	0.062	0.050	-0.108	0.074	-0.034	<b>0.862</b>	-0.023	-0.067	-0.051			
PV1	-0.146	0.020	0.175	0.203	-0.113	0.105	0.003	-0.169	<b>0.635</b>	0.039	0.600	1.765	69.284
PV2	0.015	-0.053	0.071	0.089	0.081	-0.089	-0.085	0.043	<b>0.806</b>	0.099			
PV3	-0.001	0.165	0.175	-0.068	0.107	-0.026	0.036	0.018	<b>0.686</b>	-0.067			
PS1	-0.008	0.023	<b>0.901</b>	-0.006	-0.042	0.027	0.104	0.009	0.221	-0.035	0.874	2.447	74.971
PS2	-0.003	0.014	<b>0.912</b>	0.051	-0.080	0.039	0.056	-0.010	0.159	0.031			
PS3	-0.007	-0.035	<b>0.812</b>	0.149	0.042	-0.004	-0.089	0.048	0.030	0.058			

## Confirmatory Factor Analysis (CFA)

Table 4 shows the results for the CFA and all factor loadings are significant.  $\chi^2/DF$  is 1.626, which is less than 5. As for the model fit indices, GFI = 0.875, AGFI = 0.834, NFI = 0.858, CFI = 0.939, IFI = 0.940 are greater than 0.80. We can also see that RMSEA is 0.052 and RMR is 0.064, which is less than 0.08. This indicates that the discriminant validity for the CFA model is acceptable.

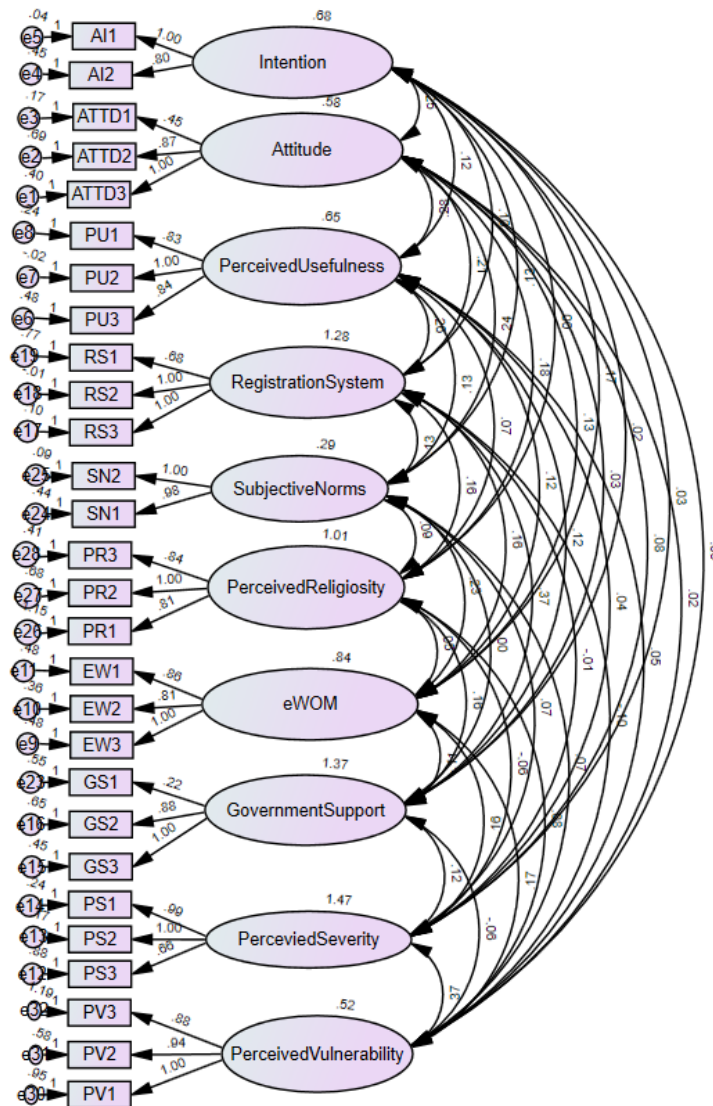


Figure 4. CFA Standardized Regression Estimates

**Table 4. Results of Confirmatory Factor Analysis (CFA)**

Constructs	Code	Regression Coefficient	Standard Error	t value	p value
Intention	AI1	1			
	AI2	0.804	0.138	5.827	0.00
Attitude	ATTD3	1			
	ATTD2	0.872	0.108	8.075	0.00
	ATTD1	0.452	0.055	8.244	0.00
Perceived Usefulness	PU2	1			
	PU3	0.843	0.065	12.986	0.00
	PU1	0.829	0.051	16.276	0.00
Usability of Registration System	RS2	1			
	RS3	0.998	0.024	41.925	0.00
	RS1	0.682	0.052	13.129	0.00
Subjective Norms	SN2	1			
	SN1	0.983	0.139	7.062	0.00
Perceived Religiosity	PR2	1			
	PR3	0.842	0.097	8.687	0.00
	PR1	0.812	0.102	7.962	0.00
eWOM	EW3	1			
	EW2	0.809	0.075	10.792	0.00
	EW1	0.856	0.081	10.558	0.00
Government Support	GS3	1			
	GS2	0.878	0.123	7.171	0.00
	GS1	0.219	0.05	4.396	0.00
Perceived Vulnerability	PV1	1			
	PV2	0.937	0.169	5.53	0.00
	PV3	0.878	0.172	5.105	0.00
Perceived Severity	PS2	1			
	PS1	0.989	0.05	19.71	0.00
	PS3	0.657	0.056	11.66	0.00
Model fit indices	Chi-square = 495.823, df = 305, p = 0.00, Chi-square/df = 1.626 GFI = .875, CFI = .939, AGFI = .834, NFI = .858, IFI = .940, RMSEA = .052; RMR = .064				

Composite Reliability (CR) and average variance extracted (AVE) were used to assess the reliability of the hypothesized constructs. All the composite reliability results are above 0.6 (range of 0.754 to 0.911) and AVE (ranges from .508 to .787) are above the suggested .70 and .50 (Fornell et al. 1981, Hsu et al. 2008). These results can be seen in Table 5.

**Table 5. AVE and Correlation Matrix**

Constructs	Mean	SD	CR	AI	ATTD	PU	RS	SN	PR	EW	GS	PV	PS
Intention (AI)	4.772	0.822	0.881	<b>0.787</b>									
Attitude (ATTD)	4.623	0.706	0.774	0.287	<b>0.538</b>								
Perceived Usefulness (PU)	4.240	0.762	0.883	0.209	0.39	<b>0.716</b>							
Registration System (RS)	3.926	1.057	0.911	0.144	0.217	0.319	<b>0.775</b>						
Subjective Norms (SN)	4.575	0.649	0.772	0.206	0.388	0.295	0.153	<b>0.631</b>					
Perceived Religiosity (PR)	2.472	1.019	0.85	-0.011	0.188	0.124	0.156	0.186	<b>0.655</b>				
eWOM (EW)	3.820	0.903	0.87	0.148	0.131	0.159	0.134	0.361	0.043	<b>0.690</b>			
Government Support (GS)	3.216	0.928	0.79	0.067	0.098	0.139	0.33	0.041	0.128	-0.059	<b>0.575</b>		
Perceived Vulnerability (PV)	3.182	0.872	0.754	-0.039	0.025	0.085	-0.066	0.108	0.051	0.164	-0.003	<b>0.508</b>	
Perceived Severity (PS)	3.284	1.136	0.908	0.043	0.06	0.023	-0.012	0.071	-0.061	0.157	0.046	0.329	<b>0.768</b>

Note: Diagonal elements (bold figures) are Average Variance Extracted (AVE) and the diagonal are the correlations

SD: Standard deviation; CR: Composite reliability; AVE: Average Variance Extracted

## Hypothesis Testing

The hypotheses in this study were tested utilizing the Structural Equation Model (SEM). Based on the model fit indices, the SEM model had an overall good fit.  $\chi^2/DF$  of  $648.094/341 = 1.901$  is less than 5.0; RMSEA 0.062 is less than 0.08. GFI = 0.838, NFI = .814, CFI = 0.882, AGFI = 0.807, and IFI = 0.902 are all above 0.8. So most of the SEM model fit indices are within the parameters and suggest that the model is acceptable. The overall results show that the model is partially supported. Specifically, 4 out of the 9 hypotheses are either supported or partially supported.

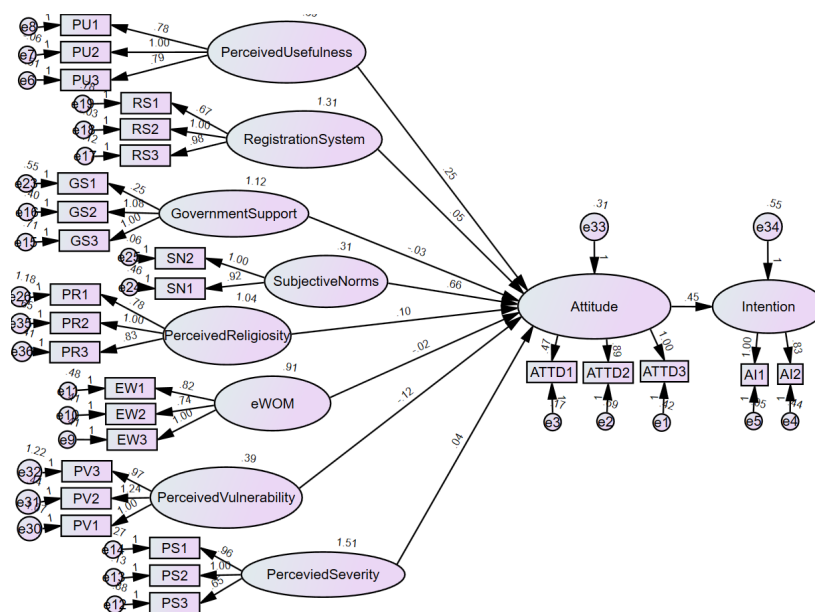
Perceived usefulness has a positive effect on participation with a coefficient of 0.255, which indicates that hypothesis 1 is supported. The effect of Usability of Registration Systems (hypothesis 2) on Attitude is not significant but the sign is positive as hypothesized. Subjective Norm (hypothesis 3) with a coefficient of 0.657 is also



supported as expected. On the other hand, Perceived Religiosity, which has a coefficient of 0.100 and a very close p-value of 0.058 suggests that hypothesis 4 is partially supported. Unfortunately, eWOM (hypothesis 5) and Government Support (hypothesis 6) effects on attitude towards vaccinations are deemed to be not significant. For the Threat Appraisals factors, both hypotheses 7 and 8 are not supported although the sign for Perceived Vulnerability is negative as hypothesized. Lastly, the effect of Attitude on Vaccination Intention (hypothesis 9) with the coefficient of 0.446 is supported.

**Table 6. Results of research model**

	Research Hypotheses	Estimate	S.E.	Standardized Coefficients	t value	p value	Result
H1	Perceived Usefulness --> Attitude	0.255	0.058	.297	4.423	0.000	Supported
H2	Registration System --> Attitude	0.049	0.041	.078	1.203	0.229	Not Supported
H3	Subjective Norms --> Attitude	0.657	0.146	.515	4.494	0.000	Supported
H4	Perceived Religiosity --> Attitude	0.100	0.053	.143	1.896	0.058	Partially Supported
H5	eWOM --> Attitude	-0.021	0.054	-.028	-.389	0.697	Not Supported
H6	Government Support --> Attitude	-0.026	0.049	-.039	-0.540	0.589	Not Supported
H7	Perceived Vulnerability --> Attitude	-0.116	0.093	-.103	-1.249	0.212	Not Supported
H8	Perceived Severity --> Attitude	0.036	0.040	.062	0.907	0.364	Not Supported
H9	Attitude --> Intention	0.446	0.091	.394	4.922	0.000	Supported



**Figure 5. Structural Equation Modeling**

## CHAPTER 5

### CONCLUSION

#### **Discussion and Implications**

This study aimed to understand the possible influencing factors to attitude towards vaccinations and vaccination intention. The results suggest that there is partial support for the proposed model because factors like Effort Expectancy, Facilitating Conditions, and Threat Appraisals did not show any significant effect on attitude and intention. However, certain aspects such as Social Influence and Performance Expectancy did indeed have a significant relationship that affects Attitude and in turn have a significant relationship toward Vaccination Intention. Some of the important points that could be taken from this study are that Perceived Usefulness, Subjective Norms, Perceived Religiosity, and positive Attitude towards Vaccination are key drivers in influencing people to get vaccinated in the Philippines.

Posited influencing factors such as Government Support, Perceived Severity, and Perceived Vulnerability may not have a strong effect on Filipino citizens due to their general outlook on the pandemic. A study by Camitan and Bajin (2021), referred to a unique trait that Filipinos identify with, which is resiliency. In situations like the Covid-19 pandemic, where citizens of a developing country suffered a lot, the study states that Filipinos not only cope but also flourish when faced with challenging situations. However, instead of addressing the problem (i.e. getting vaccinated), there may be certain citizens who would rather face the Covid-19 disease upfront and romanticize the concept of resiliency. A study by Felices (2021) examined the preliminary response of the Philippine government to the Covid-19 pandemic and found that the government did indeed lack the establishment of necessary processes and structures to facilitate information management and vaccination programs. Assuming that a sufficient supply of the vaccines would be available in the Philippines, around 440,000 administered vaccines will reduce overall government expenditure and save medical resources. The lack of government support and delays in vaccine

implementation is detrimental to the country's economic growth. Efforts should be focused not only on supplying enough vaccines but ensuring the capacity to administer them as well (Estadilla et al., 2021).

For Perceived Religiosity, a study by Vicente & Cordero (2021) highlighted that vaccination promotion tasks can be executed by the country's Catholic Higher Education. A study by Gopez (2021) stressed that the Catholic Church needs to disseminate information about the safety of vaccinations as it is of paramount importance in rolling out large-scale vaccination programs. The Philippine Catholic Church is not only a social but a political force as well that can influence powerful people in the government. An example of ongoing efforts of the Church is transforming the church facilities in vaccination sites in an effort to expedite the provision of health care needs. It is also suggested that collaboration between the Church and government will encourage people to partake in vaccination programs. Culture, religion, and the state have very important roles in safeguarding public health during the pandemic and aiding in the rollout of vaccinations (Gozum et al., 2021).

When we look at more developed countries such as the USA, Canada, and Australia, getting vaccinations are more incentivized and supported by their respective government. For example, in certain provinces in Canada, a \$100 preloaded debit card financial incentive and even scholarships for children are offered for those willing to get vaccinated. Although implications of these works are still to be discovered, proactive works toward vaccination programs are necessary to achieve herd immunity. While in the Philippines, incentivizing vaccines has been taken upon by the private sector. There are many sales, promotions, and discounts for those that have been vaccinated. There are also private establishments such as restaurants that only allow vaccinated patrons to dine in their establishments. The empirical results of this study can hopefully provide some reference in improving the implementation of future vaccination programs.

Although not all of the factors that were measured in this study proved to be significant, it can serve as a basis to provide a more comprehensive understanding of the influencing factors on vaccinations. It can also aid local governments and medical institutions to manage, execute, and evaluate measures against the pandemic and find ways and strategies to promote vaccination programs to different demographics.

## **Limitations and Further Research**

Utilizing online survey questionnaires has its pros and cons. The advantages are that you can reach a variety of respondents, disseminate it in a short period of time, and it has a relatively low cost. The drawback of using online questionnaires is the limitation of collecting various opinions due to data sampling and question contents being predefined by the researchers, which could possibly affect the findings. Some people who have reservations about getting the vaccination might not have ample access to the Internet, which could dissuade them from answering the online questionnaires. In this study, it is possible that respondents may have misread or misinterpreted some of the questions, therefore resulting in most of the hypotheses' results not being supported.

For further research, it is recommended to have a better and clearer explanation of each question, which could improve the results. Also, the majority of the respondents have already gotten the Covid-19 vaccine. It is possible that these respondents would have not felt the gravity of the threat appraisals and eWOM since they already feel secure having been vaccinated. Also, perceived religiosity and eWOM could have a reverse relationship with attitude than what was hypothesized, which could be investigated more in the future. Further research may test on other regions, religions, and focus specifically on those who are not yet vaccinated. A comparative study may also be conducted between vaccinated and unvaccinated people from different nationalities such as the Philippines and South Korea. Future studies can also add other variables to further analyze external factors that might influence such as Perceived Internal and External Benefits, Tendency to regret, Vaccine Skepticism, Socio-economic Privilege, and Political Ideology. Additionally, the effects of Covid-19 variants and the requirement to get booster shots should also be investigated.

Overall, the Covid-19 pandemic has affected the whole world regardless of nationality, race, and socio-economic background. Finding ways to improve the perceived usefulness, systems, and policies of these vaccination programs could significantly increase the attitude and behavior intention toward the Covid-19 Vaccine.

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## APPENDIX: Survey Questionnaire for Data Collection

1. Name (Optional): \_\_\_\_\_
2. Sex: Male  Female
3. Age: Under 18 years old   
 18 – Less than 30 years old   
 30 – Less than 45 years old   
 45 years old or over
4. Education: Under Bachelor   
 Bachelor’s Degree   
 Graduate Degree   
 Others
5. Employment Status: Student   
 Employed   
 Unemployed
6. Religion: Roman Catholic   
 Christian   
 None   
 Others
7. Monthly Income: Less than Php 9,520   
 Php 9,520 to Php 21,194   
 Php 21,194 to Php 43,828   
 Php 43,828 to Php 76,669   
 Php 76,669 to Php 133,484   
 Php 131,484 to Php219,140   
 Php 219,140 and up
8. Have you gotten other Vaccinations in the past?  
 Yes  No
9. Have you gotten the Covid-19 Vaccine?  
 Yes  No

<b>Questions</b>	<b>Strongly disagree (1), Neutral (3), Strongly agree (5)</b>				
10. I feel safer and can continue to study/work/travel if I get vaccinated.	1	2	3	4	5
11. I can protect my family and loved ones from getting the virus if I am vaccinated.	1	2	3	4	5
12. I will get vaccinated to get proper clearance documentation.	1	2	3	4	5
13. It is easy for me to register for the Vaccination Programs.	1	2	3	4	5

14. Using the website/app to register for the vaccination is easy	1	2	3	4	5
15. I think the lines for the vaccine and processing is simple	1	2	3	4	5
16. People who are influential to me think that I should get vaccinated to prevent the spread of Covid-19.	1	2	3	4	5
17. People who are important to me think that I should get vaccinated to prevent the spread of Covid-19.	1	2	3	4	5
18. My religion/beliefs influences my life decision.	1	2	3	4	5
19. I consult regularly with our religious leaders/elders.	1	2	3	4	5
20. I regularly attend religious activities.	1	2	3	4	5
21. I usually follow Social Media and Online News Portals for vaccine updates.	1	2	3	4	5
22. I discuss with my family and friends online regarding vaccination updates.	1	2	3	4	5
23. I get notifications and share any news about vaccination programs.	1	2	3	4	5
24. My country's government provides free vaccination services.	1	2	3	4	5
25. Our government provides adequate health insurance if negative side effects occur.	1	2	3	4	5
26. Our government has capabilities and policies to handle the Covid-19 pandemic	1	2	3	4	5
27. I think I am at risk of getting Covid-19 virus.	1	2	3	4	5
28. Even with the vaccine, it is likely that I will get Covid-19 virus.	1	2	3	4	5
29. My pre-existing conditions make it easy for me to catch the Covid-19 virus.	1	2	3	4	5
30. If I get Covid-19, I am afraid it will be severe. It will be very dangerous and life threatening.	1	2	3	4	5
31. If I get Covid-19, I am afraid it will be serious. I will have very bad side effects.	1	2	3	4	5
32. If I get Covid-19, my life will be affected significantly. My life will change drastically.	1	2	3	4	5
		<b>Bad (1), Neutral (3), Good (5)</b>			
33. Vaccinations are a bad/good idea.	1	2	3	4	5
		<b>Foolish (1), Neutral (3), Wise (5)</b>			
34. Vaccinations are a foolish/wise idea.	1	2	3	4	5
		<b>Dislike (1), Neutral (3), Like (5)</b>			
35. I dislike/like the idea of Vaccinations.	1	2	3	4	5