

Some psychological factors affecting the COVID-19 vaccine confidence of selected residents from Puerto Princesa City



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Abstract

In the Philippines, vaccine hesitancy became apparent in the early stages of the COVID-19 vaccination campaign. Research on this matter has produced diverse perspectives, with some studies confirming the presence of vaccine hesitancy while others argue that it is not a significant concern. Researchers conducted a qualitative study to explore this matter in-depth, specifically utilizing a survey method. The research aimed to understand how individuals' willingness influenced their confidence in the vaccine and the vaccination process, considering the identified psychological factors. Using purposive sampling, the researchers administered an online survey to 29 unvaccinated residents from barangays San Pedro, San Miguel, San Jose, Tiniguiban, and Macarascas. The semi-structured survey questionnaire consisted of 24 questions related to the participants' perceptions of the COVID-19 vaccination program. Thematic factor analysis, based on the adapted SAGE 3C model of vaccine hesitancy, was employed to identify the underlying psychological factors. The findings revealed that more than half of the participants were willing to be vaccinated, which is associated with their vaccine confidence. The identified psychological factors included anxiety, disinclination, distrust, responsibility, and security. Anxiety, disinclination, and distrust were found to have a negative impact, contributing to hesitancy in receiving a COVID-19 vaccine. In contrast, responsibility and security had a positive influence, contributing to the participants' willingness to get vaccinated. These results suggest that these five psychological factors significantly affect the participants' level of COVID-19 vaccine confidence.

Keywords

COVID-19, vaccine confidence determinants, SAGE 3C model, thematic analysis, vaccine hesitancy

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1. Introduction

Scientists have been actively pursuing a cure for Coronavirus Disease 2019 (COVID-19) for over a year since the global outbreak. Among the most promising preventive measures is immunization, provided by various global companies. Despite the World Health Organization's (WHO) measures to ensure vaccine safety and efficacy.

According to Sallam (2021), numerous studies on COVID-19 have reported acceptance rates below 60% in many countries, which, as they point out, could pose a challenge in achieving herd immunity. Similarly, the Proceedings of the National Academy of Sciences of the United States of America (PNAS) (2021) reported a global survey on vaccination trust across 67 countries, indicating an average suspicion level of 5.8% regarding the value of vaccines. In certain countries, this suspicion exceeded 15%.

Furthermore, Browne et al. (2015) investigated vaccine confidence and hesitancy in Brazil, revealing a notable correlation between lower confidence levels and increased vaccine hesitancy among the Brazilian population. The study indicated an overall vaccine hesitancy rate of 16.5%, with a refusal rate of 4.5% (n=43) in a sample of 157 individuals. Among 352 parents of children under five years old, 21.3% had reservations about the vaccine, with 1.7% outright refusing it. However, a separate study focusing on pregnant women noted higher vaccine acceptance rates in India, the Philippines, and all Latin American countries. Conducted through an online survey by Prehistory between October 28 and November 18, 2020, this study collected data from 16 countries, amassing 17,871 survey responses. The results revealed an overall COVID-19 vaccine efficacy rate of 90%, with 52.0% of pregnant women and 73.4% of non-pregnant women expressing willingness to receive the vaccine (Skjefte et al., 2021).

Meanwhile, Baclig (2021) reported that the Philippines ranked lowest in COVID-19 vaccine willingness among 21 countries. A Pulse Asia poll revealed that nearly half Filipinos cited safety concerns for refusing the COVID-19 vaccine. Bautista et al. (2021) suggested that males and individuals with higher educational attainment were more willing to be vaccinated. Another Pulse Asia survey highlighted that despite vaccine availability, 47% of 2,400 Filipino adults expressed unwillingness to be vaccinated. Additionally, 32% were willing, while 21% remained unsure (CNN Philippines Staff, 2020).

Vaccine hesitancy or willingness is largely affected by vaccine confidence and influencing factors. In Brazil, Browne et al. (2015) found that issues in vaccine confidence are the most common reason for vaccine hesitancy. Confidence in vaccines is affected by various influences that may encompass more than just knowledge about the risks and benefits of vaccines. Emotional, cultural, religious, political, social, and cognitive dynamics play significant roles (Badur et al., 2020; Dubé et al., 2013). For example, in a study of Browne et al. (2015), psychosocial factors associated with complementary and alternative medicine (CAM) were examined. These factors included aspects of spirituality, intuitive thinking styles, and the personality trait of openness to experience. The study suggests that vaccination skepticism appears to be the product of a certain cultural and psychological orientation, leading to reluctance to engage with the scientific evidence of vaccination.

According to the World Health Organization COVID-19 data tracker (2021), as of February 18, there have been 176,693,988 confirmed cases, 3,830,304 deaths, and 2,377,780,590 vaccine doses administered worldwide. In the Philippines, the Office of the Presidential Spokesperson (2021) has reported the arrival of 14,205,870 vaccine doses. However, a news report by Sabillo (2021) highlighted the results of an online survey conducted by University of Santo Tomas (UST) professors on October 8, 2020, involving 15,600 Filipinos residing in the Philippines. When asked, "If a vaccine is available in the Philippines, would you use it?" the responses were as follows: 23.7% of participants said they were "yes and confident," 32.1% said "probably yes," 34% were unsure, 6.7% said "probably not," and 3.5% would not take any vaccine.

According to the Department of Health (DOH) MIMAROPA (2021), Palawan received 55,960 vaccine doses between June 08 and 22. Out of this, 144 doses were allocated to Puerto Princesa City, which has a population of 300,346 (Population, 2021). However, as of the time of writing, only 5,042 individuals in Puerto Princesa has received the second or complete dose of the vaccine.

Locally, data from the Philippine DOH COVID-19 tracker (2021) indicates approximately 800 active cases in the province of Palawan in February. More specifically, as of May 28, 2021, the Department of Health reported 2,308 confirmed cases of COVID-19 in Puerto Princesa City as of April 03, 2020. Additionally, the Incident Management Team (IMT) of Puerto Princesa City (2021) disclosed in their May 05 report that 447 confirmed active COVID-19 cases and 140 suspected cases in Puerto Princesa City, Palawan.

Meanwhile, an article in the *Inquirer* (2021) reported that on March 08, the first batch of COVAX vaccines, donated by the Chinese government, arrived in Palawan. These vaccines were intended for the immunization of health frontline workers in the province. However, out of 698 Ospital ng Palawan (ONP) health workers, only 180 received the free vaccine. Others chose to wait for the arrival of the AstraZeneca vaccine, indicating a preference to adopt a wait-and-see approach (Miranda, 2021). This suggests that vaccine hesitancy may be influenced by factors such as the vaccine brand and manufacturer, affecting the COVID-19 vaccine confidence of individuals. Therefore, it is imperative to investigate the factors influencing COVID-19 vaccine confidence, not only among health frontline workers but also among the broader population, especially those residing in areas of Puerto Princesa City with a high incidence of COVID-19 cases.

As COVID-19 cases continue to rise, vaccines have become available in Puerto Princesa City. Survey results reveal that many people are hesitant to receive the vaccine. As a result, the researchers have embarked on a study to explore the COVID-19 vaccine confidence and the underlying psychological factors that impact the confidence among selected residents in Puerto Princesa City. Furthermore, the researchers aim to elucidate how these psychological factors affect the COVID-19 vaccine confidence in the selected residents.

The findings of this research may lay the foundation for future local studies on the role of psychological factors in influencing vaccination campaigns against specific illnesses, particularly COVID-19. Additionally, the results of this study may guide the local government of Puerto Princesa in developing strategies to encourage its citizens to avail themselves of COVID-19 or other vaccines as the world continues to combat this and other health crises.

This study represents the first local research conducted in the City of Puerto Princesa, investigating the psychological factors that influence the acceptance or refusal of vaccines, particularly focusing on determining the level of COVID-19 willingness or hesitancy among selected participants and examining how identified psychological factors shape this. The research framework was guided by the model of vaccine hesitancy provided by the Strategic Advisory Group of Experts (SAGE) on Immunization (2014). According to this model, confidence in vaccines is defined by trust in three critical aspects: 1) their effectiveness and safety; 2) the system responsible for their delivery, encompassing the reliability and competence of health services and professionals; and 3) the motivations of policymakers who determine the necessary vaccines. Vaccine confidence is believed to be interrelated with both vaccine hesitancy and vaccine acceptance.



The SAGE 3C Model of Vaccine Hesitancy views vaccine confidence as one of its determinants and a specific component within a broader framework. This conceptual model investigates the reasons for the delay in vaccine acceptance or refusal, despite the availability of vaccination services—called vaccine hesitancy. It categorizes contributing factors into three main areas: confidence, complacency, and convenience.

Since this study focuses on COVID-19 vaccine hesitancy among selected residents of Puerto Princesa City, the researchers have agreed on these definitions and aimed to narrow their focus to one of the determinants of vaccine hesitancy, which is vaccine confidence. By adopting SAGE's 3C vaccine hesitancy model, researchers could categorize the insights of selected residents of Puerto Princesa City based on contextual, individual, social, and vaccine-specific influences. This classification guided them in exploring the underlying psychological factors that affect the COVID-19 vaccine confidence of selected residents.

2. Method

2.1. Research Design

This study employed a quantitative and qualitative research design, specifically utilizing the survey method and thematic analysis. The researchers adopted the WHO-SAGE Working Group Model of Vaccine Hesitancy as their framework. This model served as a guide to assess the following aspects: the COVID-19 vaccine confidence among selected residents of Puerto Princesa; the psychological factors influencing their COVID-19 vaccine confidence, which are shaped by contextual, individual, social, and vaccine-specific influences; and how these psychological factors impact their COVID-19 vaccine confidence.

2.2 Participant Recruitment and Selection

Table 1.

Profile of Selected Residents of Puerto Princesa City

Barangay of Residence	Frequency	Male	Female
Tiniguiban	6	2	4
San Pedro	6	3	3
San Jose	6	4	2
San Miguel	5	3	2
Macarascas	6	0	6
Total	29	12	17

Due to the limitations imposed by the COVID-19 pandemic, the researchers deliberately selected adult participants who did not belong to priority groups defined by the Department of Health (DOH), such as front liners, minors, and senior citizens. This decision was motivated by the greater accessibility of adults, particularly during intermittent lockdowns, and their proficiency in using digital platforms for data collection.

Furthermore, participants were required to be bona fide residents of the top five barangays with the highest recorded cases of COVID-19 infections. This selection aimed to narrow the study's focus to the COVID-19 vaccine confidence among participants from these barangays, potentially shedding light on the increased number of COVID-19 infections in the locality.

The study's participants included 29 Puerto Princesa City residents aged between 21 and 52, within the criteria of 21-59 years. Most were female, comprising 17 out of the 29 participants, or 58.6%. In addition, an equal number of participants were drawn from all barangays, except for Barangay San Miguel, which had five participants compared to the six from the other barangays. Table 1 displays the frequency distribution of participants according to their barangay of residence and gender.

The study employed an online written survey to comply with minimum public health standards. Twenty-nine selected residents from Puerto Princesa were surveyed using purposive sampling. These residents were specifically chosen from Barangay Tiniguiban, San Pedro, San Jose, San Miguel, and Macarascas — the top five barangays with the highest number of COVID-19 cases recorded from May 03 to May 05, 2021, according to the report from the City Incident Management Team. The inclusion criteria encompassed individuals aged 21-59, unvaccinated against COVID-19, and verified as genuine residents of the mentioned barangays.

2.3 Data Collection

The selected residents responded to a 24-item semi-structured survey questionnaire. This questionnaire was designed to align with the problem statement presented in the earlier sections of the paper. The questions begin with whether the participants wished to receive the COVID-19 vaccine. Subsequently, participants were prompted to elaborate on the reasons behind their decisions. They were also asked if they desired their loved ones to be vaccinated and how they believed such vaccinations might impact themselves and the community.

The survey questionnaire underwent content validation and received approval from various experts. Subsequently, instrument validation was conducted through pilot testing. Tagalog translations of the questions were included to ensure that the questions were easily understandable to the selected residents.

The researchers administered the questionnaire to a smaller sample of selected residents from Puerto Princesa, who were excluded from the actual participants. The pilot study yielded promising results, as the questionnaires were comprehensible to the participants and provided the necessary answers.

Adhering to local health protocols, the researchers coordinated with barangay officials online and submitted a letter requesting their assistance in inviting potential participants. This was complemented by promotional materials posted by the researchers on the Facebook page they had established to attract more participants. Upon identifying and selecting potential participants, the researchers contacted them and presented the approved letter, informed consent form, and the code of ethics. After obtaining approval, the researchers discussed the necessary instructions and provided information.

The primary survey platform used was Google Forms. However, some residents participated via Facebook Messenger, which was also acceptable. This study adhered to the precautions implemented during the pandemic.

Furthermore, the study's ethical considerations were reviewed by the in-house technical reviewer of the Palawan State University Research Office; however, it did not undergo deliberation by a research ethics committee (REC).



2.4 Data Analysis

This is a qualitative study that utilizes a survey method. However, to gauge the COVID-19 vaccine hesitancy or willingness among selected residents, percentages were utilized to determine how many participants were willing, unwilling, or undecided.

In examining psychological factors and their effects on COVID-19 vaccine confidence among selected residents, thematic and factor analyses were employed. Thematic analysis was conducted using QDA Miner Lite, a qualitative data organizer, with an adaptation of the SAGE 3C model of vaccine hesitancy. The SAGE 3C model of vaccine hesitancy postulates that vaccine uptake is influenced by confidence, convenience, and complacency determinants. This paper primarily focused on the confidence pillar.

3. Findings

Table 2.

COVID-19 Vaccine Willingness of Selected Participants of Puerto Princesa City

COVID-19 Vaccine Willingness of Selected Participants	Frequency	Percentage
Willing	15	51.7
Unwilling	6	20.6
Undecided	8	27.5
Total	29	100%

The table illustrates that most selected participants, specifically 15 out of 29 (51.7%), are willing to receive a COVID-19 vaccine. In contrast, 20.6% of the participants (six individuals) expressed unwillingness to get vaccinated, while 27.5% (eight participants) remained undecided at the time of the survey. Most selected residents demonstrate confidence in vaccinating against COVID-19, as evidenced by their willingness and positive attitudes regarding its benefits. Furthermore, the findings highlight a sense of responsibility for the community's welfare and a personal sense of security as the primary psychological factors influencing this confidence.

Table 3.

Psychological Factors Affecting the COVID-19 Vaccine Confidence of Selected Residents and its Determinants

Psychological Factor	Influences			
	Contextual	Individual	Social	Vaccine-specific
Anxiety	/	/	/	-
Disinclination	-	/	-	/
Distrust	/	/	-	/
Sense of Responsibility	-	/	/	-
Sense of Security	/	/	/	/

Note: The use of '/' signifies that anxiety is influenced by the following factors, whereas '-' indicates the absence of anxiety within those specific influences

The SAGE working group on vaccine hesitancy defines vaccine confidence as trust in these three key aspects: 1) the effectiveness and safety of vaccines; 2) the system responsible for delivering them, including the reliability and competence of health services and professionals; and 3) the motivations of policymakers who determine the necessary vaccines. In addition to this definition, this paper incorporates the influences outlined in the SAGE 3C model of vaccine hesitancy, which encompasses contextual, individual, social, and vaccine-specific influences. Contextual influences can stem from health and institutional systems, as well as historical, sociocultural, environmental, economic, and political factors. Individual and social influences pertain to perceptions and beliefs shaped by personal viewpoints or peer and group influences. Lastly, vaccine-specific influences relate directly to vaccines and the vaccination rollout. These influences serve as the foundation from which psychological factors affecting the COVID-19 vaccine confidence of selected residents emerge. A combination of factors analysis and thematic analysis was employed to analyze these factors, revealing five primary psychological factors: anxiety, disinclination, distrust, sense of responsibility, and sense of security. Table 3 summarizes these psychological factors and their corresponding determinants influencing the COVID-19 vaccine confidence of selected residents.

a. Anxiety

Anxiety is commonly observed in human cultures worldwide and in several animal species (Damasio & Carvalho, 2013). It is a psychological factor that manifests as a sense of dread and uneasiness when contemplating receiving the COVID-19 vaccine, as exhibited by selected residents. Contextual, individual, and social factors influence anxiety.

3.1.1 Contextual Influence: Communication and Media Environment

Among the contextual influences outlined in the SAGE 3C model, the communication and media environment primarily impact anxiety. The news and information that selected residents receive from various media and social platforms significantly affect their confidence in getting vaccinated. This influence may stem from the negative information that tends to induce anxiety. Reports about vaccine-related deaths and adverse reactions to the COVID-19 vaccine generate feelings of dread among selected residents. These individuals express concerns about the prospect of death following vaccination and anxiety regarding potential adverse effects influenced by the information they encounter. As the participant expressed,

Nakakatakot kasi baka kapag nagpabakuna ka baka mamatay ka bigla. [It's scary because you may die after getting vaccinated.] - Participant 1

Nakakakaba po pag may narinig o nabalitaan pong masama patungkol sa bakuna. Yung sa mga balita po na naririnig ko na negatibong epekto ng bakuna lalo na sa aming may mga edad na. [It's nerve-racking whenever I hear, or I find out bad things about vaccine. I've heard news reports regarding vaccine side effects, particularly to elderly people.] - Participant 16

Furthermore, the media's alarming reports of increasing infections contribute to anxiety among selected residents, leading to their indifference toward COVID-19 vaccines and their effectiveness. This sentiment is evident in the following statements:



Kinakabahan po ako pag meron akong nakikitang balita na may issue sa vaccine. Kasi po, kahit may mga nagpabakuna na nag-papositive pa rin po. Tsaka may mga balita po akong nakikita sa social media tungkol sa side effects ng bakuna. [I am worried whenever I see news that vaccines have issues. It is because there is no assurance after getting vaccinated. Some also got their dose and yet tested positive. Moreover, I also hear news on social media about the vaccine's side effects.] - Participant 6

Dumadami na ang cases sa Palawan at nakakakaba masyado kapag nagkakaroon ng sakit (ubo, sipon etc na related sa symptoms ng COVID. Media kasi yung source of information natin, lalo na sa ngayon. Madaming fake news about vaccines so mas nakakagulo ng desisyon sa buhay. [The number of cases in Palawan is increasing and it is very scary when there is an illness (cough, cold, etc. that is related to covid symptoms.) Media is our source of information, especially right now. There is a lot of fake news about vaccines that make life decisions even more confusing.] – Participant 28

3.1.2 Individual Influences: Beliefs, Attitudes About Health and Prevention

Beliefs and attitudes about health and prevention, categorized as individual influences in the SAGE 3C model, are crucial in influencing anxiety among selected residents. Specifically, individual beliefs and health-related attitudes, such as the fear of needles and personal health concerns, contribute to feelings of dread and unease regarding vaccination. This uneasiness negatively impacts them as it hinders them from pursuing vaccination despite their trust in health professionals and the vaccines themselves. The selected residents fear potential adverse effects on their bodies, even though they acknowledge the vaccine's importance and may know individuals who have already received it.

For example, one participant shared her experience with vaccinations, expressing trust in the available COVID-19 vaccine brands and those responsible for its administration. When questioned about how she would fare if she declined the COVID-19 vaccine, she responded:

Madaling mahahawa ng COVID. [I may easily contract COVID.] - Participant 12

However, she remains undecided about receiving the vaccine due to concerns about her health, given her underlying medical condition.

3.1.3 Social Influence: Community Members' Experience with Vaccination

The SAGE 3C model's social influences encompass the experiences of community members with vaccination. The findings of this study align with this aspect, as anxiety is shown to be influenced by the knowledge of selected residents regarding their peers' past experiences with COVID-19 vaccination. Instances where community members had negative experiences with the COVID-19 vaccine tend to instill anxiety in selected residents, subsequently affecting their confidence in getting vaccinated.

For instance, one participant mentioned knowing someone who passed away after allegedly developing an illness following the COVID-19 vaccine, which has left her uncertain about whether to receive the vaccine. Another participant shared:

May kakilala akong namatay dahil nagkasakit mula nang mabakunahan kaya natatakot akong mangyari sa akin iyon. [I know someone who died because of illness developed after vaccination. That is why I am afraid it might happen to me.] - Participant 12

3.2 Disinclination

Disinclination, a psychological factor, refers to the reluctance to receive the COVID-19 vaccine due to a lack of enthusiasm. It is influenced by the individual's knowledge and awareness of vaccination details and attitude toward the vaccine delivery method. Both individual and vaccine-specific factors influence disinclination.

3.2.1 Individual Influence: Knowledge and Awareness About the Vaccines

Disinclination is a psychological factor influenced by the personal choices of selected residents, primarily stemming from a lack of knowledge or awareness about vaccination. One participant, who also exhibited anxiety, reported that she is not inclined to get vaccinated due to her limited awareness and knowledge about the vaccines. As expressed below:

Hindi pa po ako makapili. Di ko pa po masyadong alam yung tungkol sa bakuna.
[No, I cannot choose yet since I know little about vaccines.] - Participant 6

3.2.2 Vaccine-Specific Influence: Attitude About the Vaccine Mode of Delivery

Apart from personal preference, disinclination is also influenced by the attitude of selected residents towards the mode of vaccine delivery, including feelings of laziness evoked by the vaccination process. Participants' attitudes toward administering vaccines affect their willingness to get vaccinated. Participant 2 expressed his willingness to get vaccinated but noted that it was hindered by the inconvenience of waiting in line at the vaccination site, which he perceived as a waste of time. This sentiment is reflected in the statements below:

Oo, mayroon akong balak magpabakuna pero tinatamad pa ako. Tinatamad po ako pumila. [I am willing to be vaccinated but I am too lazy to do it. I feel lazy to wait in line.] Waste of time. I am a busy person. - Participant 2

3.3 Distrust

Findings reveal that distrust is one of the psychological factors negatively impacting the COVID-19 vaccine confidence of selected residents. This distrust arises from misinformation received by participants, skepticism regarding the vaccine's effectiveness, and controversies surrounding its potential risks. The lack of trust in COVID-19 vaccines diminishes the willingness of selected participants to get vaccinated. Contextual, individual, and vaccine-specific influences primarily shape distrust.

3.3.1 Contextual Influence: Skepticism About the Government's Policies

The primary sources of distrust are skepticism about the government's policies regarding the vaccination program and a lack of trust in the government's preventive measures against COVID-19. For instance, an undecided selected resident expressed disbelief in the government's handling of the pandemic response, stating:

I do not trust any government on the planet. I do not pay attention. The Government will use lockdowns as control measures for as long as possible. This has very little to do with public health. - Participant 12



In another account, a selected resident recounted how her willingness to get vaccinated was affected when her trust in the vaccination process decreased. This occurred when she heard that their barangay officials offered money to incentivize people to vaccinate. She felt that this initiative by the local government reduced the value of their lives and safety to a monetary incentive. As stated by one participant:

Meron dahil magbigay sila ng 500 pesos bawat isa. Sa akin lang po, yun lang po ba ang halaga ng buhay ng tao? Kung magbigay po ng magandang serbisyo ang gobyerno tungkol sa COVID-19, sana wag naman pong lantaran na magbigay sila ng pera. Dahil sa hirap po ng buhay ngayon, papatusin po nila yan, may pambili lang ng bigas. [There is. Because they are giving 500 pesos each. In my opinion, does that equate with the value of life of a person? If the government is giving good service regarding COVID-19, I hope they do not give money openly like that. Because of how poor life is nowadays, the people will accept it for food.] - Participant 20

3.3.2 Individual Influences: Lack of Trust in Health Providers

Distrust influenced by individual factors arises from suspicions regarding the health providers, the efficacy, and potential risks of the vaccine. This highlights the importance of instilling confidence in individuals that the vaccine is effective and safe without endangering their lives. One participant wrote:

Hindi ako sumasang-ayon dahil sa hindi natin alam ang magiging epekto sa ating katawan. Kahit sabihin pa ng doctor na wala po tayong sakit, hindi kami kasiguraduhan na 100% ligtas kami sa pagpapabakuna. [I do not agree (to be vaccinated) because we don't know the effect of the vaccine on our body even if doctors say that we are/will be fine, no, because we are not sure if getting a vaccine is 100% safe.] - Participant 20

3.3.3 Vaccine-Specific Influences: Risk

Vaccine-specific influences, as outlined in the SAGE 3C model, encompass health risks and vaccine side effects. The selected residents' primary reasons for their unwillingness to vaccinate are concerns related to the vaccine's efficacy and potential health risks. These concerns significantly contribute to their distrust, as they are apprehensive about jeopardizing their lives through vaccination. Participant 7, an undecided participant, said

I have been vaccinated all my life. I do not see any point in a vaccine that does not work. Other countries still have severe cases, with over 50% vaccinated.
– Participant 7

Aside from concerns about the vaccine's efficacy, the distrust among selected residents regarding COVID-19 can also be linked to suspicions about the motives behind the vaccine's development. An unwilling participant expressed these concerns, stating:

Isa itong pasimula na madali na lang tayo i-manipulate kung ito ay naka-program na sa nanotechnology. [If it is programmed nanotechnology, it is the beginning of manipulation.] - Participant 13

3.4 Sense of Responsibility

Sense of responsibility is a psychological factor that refers to the awareness and perception of an obligation to society to vaccinate against COVID-19. Personal and collective beliefs and attitudes about health and prevention primarily influence it. Individual and social influences shape responsibility.

3.4.1 Individual Influences: Beliefs, Attitudes About Health and Prevention

The individual sense of responsibility selected residents hold regarding health and prevention, such as their belief in "contributing to society" and the perception that "getting vaccinated is the right thing to do," enhances their willingness to accept COVID-19 vaccines.

I am willing to be vaccinated against COVID-19 because it is the right thing to do and to contribute to our country/society and front liners. I always look forward to either positive or negative results. At least I tried to be responsible; vaccination is the key to returning to normal life. - Participant 10

3.4.2 Social Influence: Peers' Experience With Vaccination

A socially influenced sense of responsibility has also impacted the COVID-19 vaccine confidence among selected residents. Notably, the vaccination requirements imposed by peers at work tend to influence how these residents perceive vaccination. For instance, even though one selected resident is initially unwilling to get vaccinated, she remains hopeful that life can return to normal because of the COVID-19 vaccination. When asked if any events influenced her willingness to get vaccinated, she shared that her friends have already been vaccinated because it is required for their jobs. Thus, they consider it their responsibility to ensure they all receive the vaccine.

3.5 Sense of Security

Sense of security is a psychological factor defined as the feeling of emotional assurance brought about by the perceived positive and comforting effects of getting vaccinated against COVID-19. This psychological factor emanates from various contextual, individual, social, and vaccine-specific influences.

3.5.1 Contextual Influence: Media and Governance

On the flip side, the media, as one of the tools for disseminating information to the public, positively impacted COVID-19 vaccine confidence among selected residents. Some participants viewed the media as helpful in informing the public about the vaccine's benefits, which in turn boosted their COVID-19 vaccine confidence. As stated below,

Oo, gusto ko magpabakuna kasi sabi sa balita ito ay para maprotektahan ko ang aking sarili at ang tao sa aking paligid kontra sa virus. Mayroon ding testimonya na okay naman sila pagkatapos magpabakuna [Yes, I am willing to be vaccinated, because based on the news it can protect me and the people around from the virus. More so, some testimonials stated that they did not experience anything after being vaccinated.] - Participant 4

Similarly, the government also influences the sense of security among selected residents. Governmental policies have been instrumental in increasing confidence in getting vaccinated. As implied by a participant, the COVID-19 vaccination program plays a crucial role in preventing the spread of the virus. One participant said,



Malaking tulong ito (government vaccination program) na makaiwas tayo tamaan ng COVID-19. Dahil sila ang mas nakakaalam kung ano ang dapat gawin sa mga tinamaan ng COVID. [Government vaccination program is helpful in preventing acquiring the virus. Government is aware of what to do if you acquire the virus.]

- Participant 26

3.5.2 Individual Influence: Benefit

Sense of security is most evident in individual influences and is linked to the implied reason of "being safe and protected" from the virus. Selected residents believe vaccinating will protect their bodies and provide immunity against COVID-19. Participant 2's statement is like Participant 4's reflected below.

Para na rin sa aking sarili at mga mahal sa buhay. At para na rin sa kaligtasan para maprotektahan at maging immune laban sa COVID-19. [For myself and my family. For our safety and to be protected and immune against COVID-19.]

- Participant 4

Moreover, selected residents believe that getting vaccinated will protect them and provide them with comfort in returning to normal, as stated below.

Sumasang-ayon akong magpabakuna upang maging ligtas at di basta-bastang makakapitan ng sakit na COVID-19 at mapanatag ang loob kung saan man magpunta. [I agree to be vaccinated to be safe and have immunity against COVID-19 and comfortable everywhere I go.] - Participant 21

If people are willing to be vaccinated, it could be the way for us to return to normal lives. Nevertheless, that is their decision, and I respect that. - Participant 10

3.5.3 Social Influences: Peer Experience and Trust on Healthcare Providers

A socially influenced sense of security is derived from the experiences of community members who have previously been vaccinated against COVID-19. Selected residents express their willingness to get vaccinated because their peers have done so and had no adverse effects, recognizing its necessity for public safety. As mentioned by a participant:

Oo dahil wala namang masamang nangyari sa mga kasama ko. Dahil kailangan nila ito at para sa kaligtasan. Para na rin sa mamamayang kanilang nasasakupan. Gayun pang wala namang masamang nangyari sa kakilala ko. [Yes, because nothing bad has happened to people I know have been vaccinated. For the safety and for the sake of the people in the community. More so, those individuals who got their shots are still fine.] - Participant 2

In addition, family, as part of social influences, bolsters the willingness of selected residents to get vaccinated. They want to receive the vaccine to ensure the safety of their families and are encouraged by their neighbors and relatives. This is evident in the statement below:

Oo, gusto kung magpabakuna para na rin sa safety ng pamilya ko kontra sa virus. Ang pamilya at kapitbahay namin ang nag-udyok sa akin magpabakuna dahil maganda ang epekto nito sa kanila. [I am willing to be vaccinated not only for my safety but also for my family's protection. My family and neighborhood encouraged me to get vaccinated as it has good effects to their health.] - Participant 4

Trust in health workers is evident in the socially influenced sense of security among selected residents who express willingness to get vaccinated. They are acquainted with health workers and believe they are experts in COVID-19 vaccination, as mentioned below:

Oo, marami akong kaibigan na propesyunal at ginawa naman nila ang makakaya nila para sa publiko. Base sa aking karanasan, mayroong mga survivors na nag-share ng story na nanghikayat sa aking magpabakuna. [Yes, I have a lot of friends who are working in this field, and I know they are doing their best for the public. Based on my experience, some survivors shared their stories which encouraged me to get vaccinated.] - Participant 5

Opo, para maligtas sa COVID. Opo nagtitiwala po ako kasi po inaral po nila iyon. [Yes, to be safe from COVID-19. Yes, I trust them because they studied it.] - Participant 6

3.5.4 Vaccine-Specific Influence: Benefit

A sense of security influenced by concerns about the efficacy of the vaccines, particularly their benefits, tends to increase the confidence among selected residents to get vaccinated against COVID-19. Specific components of the vaccine that offer protection to one's health are explicitly cited as a major motivation. Selected residents are willing to be vaccinated because they believe antibodies will provide them with protection and reduce the risk of contracting the virus, as reflected by the statements below:

I am willing to be vaccinated against COVID-19 because these antibodies will protect me. Vaccines continue to reduce a person's risk of contracting the virus that causes COVID-19, including this variant. - Participant 11

Table 4.

Frequency of Selected Residents Who Exhibited the Psychological Factors Concerning Their Willingness to Get Vaccinated Against COVID-19

Psychological Factors	Willingness of Selected Residents Who Exhibited it		
	Willing	Unwilling	Undecided
Anxiety	4	5	5
Disinclination	1	-	1
Distrust	-	3	1
Sense of Responsibility	8	1	-
Sense of Security	2	-	-

Note: The use of '-' indicates no response recorded.

The effect of the determined psychological factors on the COVID-19 vaccine confidence (in terms of willingness) among selected residents was analyzed using the roster of participants who exhibited them concerning their reported COVID-19 vaccine confidence. Table 4 provides a summary of these findings. Psychological factors predominantly exhibited by those willing to be vaccinated against COVID-19 among



selected residents were considered to affect their COVID-19 vaccine confidence positively. Conversely, psychological factors predominantly exhibited by selected residents who were hesitant and undecided to get vaccinated were considered to impact their COVID-19 vaccine confidence.

4.1 Anxiety: Negative

Out of the 14 participants who displayed anxiety, five were unwilling, five were undecided, and four were willing to be vaccinated. This suggests that anxiety negatively affects the COVID-19 vaccine confidence of selected residents, as most participants who exhibited it were not complacent about getting vaccinated. This aligns with the idea that anxiety is manifested as selected residents' feelings of dread and uneasiness at the thought of getting vaccinated against COVID-19.

4.2 Disinclination: Negative

Two participants who displayed disinclination were willing and unwilling, respectively. Despite having confidence among the selected residents who exhibited it, disinclination tends to negatively affect the COVID-19 vaccine confidence of selected residents. This is because the participant who is willing but disinclined to get vaccinated reports being hesitant to undertake it, resulting in the same negative effect—a hindrance to vaccination.

4.3 Distrust: Negative

Three participants who exhibited distrust are unwilling to get vaccinated against COVID-19, and one is undecided. This explains why distrust negatively affects the COVID-19 vaccine confidence of selected residents. Distrust hinders the participants from getting vaccinated as they are skeptical about the vaccines, the vaccination scheme, and the information they receive.

4.4 Sense of Responsibility: Positive

Two participants who displayed a sense of responsibility reported being willing to vaccinate against COVID-19. This is precisely why it falls into the positive dimension. A sense of responsibility prompts selected residents to become aware of their obligation to society and public health, making them realize the importance of vaccination.

4.5 Sense of Security: Positive

Eight out of nine selected residents who exhibited a sense of security expressed willingness to get vaccinated. Only one participant refused to get inoculated. Nonetheless, this participant acknowledged that it is necessary to get vaccinated as it will provide security. Therefore, the sense of security positively affects the confidence of selected residents of Puerto Princesa, as it gives them hope that COVID-19 vaccines provide benefits that can help them feel safe and comfortable.

5. Discussion

Local and international research indicates that most people are willing to be vaccinated against COVID-19 (Bautista et al., 2021; Danabal et al., 2021; Yoda & Katsuyama, 2021). This paper supports these findings, as a majority of 51.7% of selected residents report being willing to get vaccinated against COVID-19. This figure may increase to 82% if participants become convinced that COVID-19 vaccines are effective (Bautista et al., 2021).

Psychological factors affecting the COVID-19 vaccine confidence of selected residents in Puerto Princesa are anxiety, distrust, and disinclination. These three factors tend to negatively impact COVID-19 vaccine confidence. Anxiety refers to the uneasiness that selected residents feel about the idea of getting vaccinated against COVID-19. In contrast to Bendau et al. (2021), this study found that anxiety related to vaccination

has a negative effect on COVID-19 vaccine confidence. Fear of side effects is the primary reason for vaccine refusal, and an overemphasizing of COVID-19 vaccine side effects in media could lead to a lower vaccination rate (Yoda & Katsuyama, 2021).

Distrust relates to selected residents' lack of trust in the vaccines and the system responsible for their delivery. Low trust in the government, skepticism about the efficiency of implemented measures, and doubts about the accuracy of information regarding COVID-19 are associated with a higher likelihood of vaccine refusal (Roberts et al., 2021; Soares et al., 2021). Despite vaccines' relatively low risk, people may still believe otherwise (Fefferman & Naumova., 2015).

Disinclination signifies the disinterest of selected residents in getting vaccinated against COVID-19. Unlike the findings of Robledo et al. (2021), whose participants favored receiving the free COVID-19 vaccine, selected residents expressed disinterest, primarily due to waiting in line. In another study, some individuals who do not consider COVID-19 a significant risk believe they can protect themselves naturally (İkişik et al., 2021).

However, a sense of security and responsibility are psychological factors found in this study to impact COVID-19 vaccine confidence among selected residents positively. Those willing to be vaccinated against COVID-19 cited personal protection and communal responsibility as reasons for their willingness (Roberts et al., 2021). Attitudes toward COVID-19 vaccines are shaped by individuals' lived experiences aligned with their personal and communal interests (Paul et al., 2022). Building vaccine confidence is essential to reach the required vaccine levels and significantly reduce the risks of COVID-19 infection in communities (Kaufman et al., 2021, p. 16). Vaccines are effective for populations that accept them, but they can also have negative effects and outcomes in populations with high levels of rejection (Fefferman & Naumova, 2015). Addressing psychological factors such as anxiety, distrust, and disinclination is crucial to increasing vaccine confidence and acceptance.

An account by the Organization for Economic Co-operation and Development (2021) highlighted the pivotal role of the government in shaping constituents' trust and acceptance of vaccines. Furthermore, the government can devise tailored approaches to alleviate the distrust among specific residents regarding the vaccine, its delivery system, and its efficacy. Addressing anxiety related to potential COVID-19 vaccine side effects is also imperative. Browne et al. (2015) discovered that enhancing vaccination compliance is achievable by fostering general confidence in evidence-based medicine or leveraging associated attributes. Effective vaccination strategies should adopt participatory methods, foster trust, engage communities, and implement communication campaigns on vaccine advancements (Fadda et al., 2021). By relying on evidence-based medicine, targeted residents' anxiety and distrust may be alleviated, fostering a sense of security and responsibility. Moreover, instilling greater trust in healthcare professionals rather than relying on one's social circle can bolster vaccine confidence and uptake (Mannan & Farhana, 2021).

Therefore, given that vaccine hesitancy correlates with vaccine confidence, we can infer that participants' willingness to receive vaccination reflects their confidence level, influenced by various factors. A closer examination reveals that negative factors contribute to hesitancy among participants, resulting in a lower confidence level. These negative effects stem from four psychological factors: contextual, individual, social, and vaccine-specific. Conversely, positive psychological factors motivate individuals to seek vaccination as they shape their confidence in getting vaccinated.



The findings of this study provide insights into the underlying psychological factors affecting COVID-19 vaccine confidence among selected residents in Puerto Princesa. This study is a foundational assessment of COVID-19 vaccine confidence within this population, guiding local intervention strategies to bolster confidence. The study suggests a divergence in participants' attitudes: while some are willing to be vaccinated, others display low confidence. This discrepancy could be attributed to misinformation and isolated cases of adverse effects post-vaccination. Notably, psychological factors such as anxiety, disinclination, distrust, sense of responsibility, and security exert both negative and positive influences on vaccine acceptance.

Overall, the researchers have considered the study's discrepancies and limitations, encompassing variations in sample sizes, constructs, and demographic locations. The study's findings and evidence from other studies demonstrate diversified levels of COVID-19 vaccine confidence globally.

6. Conclusion

Generally, most selected residents showed willingness to be vaccinated against COVID-19, with 51.7% expressing their willingness for a COVID-19 vaccination. As supported by literature, this inclination is associated with their confidence. However, various psychological factors influence vaccine confidence among these residents. Anxiety, disinclination, and distrust have adverse effects on their willingness to get vaccinated. Conversely, a sense of responsibility and security positively encourage selected residents to receive the vaccine.

After examining the impact of these psychological factors, they significantly affect the participants' willingness or hesitancy towards vaccination, which correlates to their vaccine confidence. These factors act as either hindrances or facilitators to their confidence in the vaccine. Consequently, vaccination strategies should prioritize trust-building through evidence-based medicine, community engagement, and public education campaigns emphasizing the importance of COVID-19 vaccination.

7. Recommendations

The researchers acknowledge the limitations observed in conducting this study and offer the following recommendations:

1. To the local government of Puerto Princesa: Implement information dissemination initiatives through programs, posters, and public commercials (infomercials) to address the findings of this study. These efforts can help increase community awareness, which could affect their vaccine confidence.
2. To students and teachers: Encourage further research and the organization of programs to raise community awareness about COVID-19 vaccination. Additional studies are needed to yield more robust and conclusive results that support the findings of this study.
3. To researchers and future researchers: Recognize that the sample size in this study was limited, and therefore, the results may not be generalized to the entire population. It is recommended to involve a larger and more diverse group of participants in future research to enhance result generalizability. Moreover, consider utilizing various sampling techniques to ensure a representative sample. Replicating this research with larger samples and employing more advanced sampling and data-gathering methods is essential for obtaining broadly applicable outcomes.

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Declaration of Conflict of Interest

The researchers declare that no conflict of interest is involved in this study.

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