Article

Exploring Students' Attitude Toward COVID-19 Vaccination

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Exploring Students' Attitude Toward COVID-19 Vaccination

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Abstract: This study aimed to investigate students' attitudes toward COVID-19 vaccination measures by evaluating their demographic characteristics, vaccination status, and willingness to be immunized. Conducted at a State College in North Cotabato, Philippines, with a sample of 462 students from various year levels, the research utilized descriptive statistics and Binary Logistic Regression (BLR) for data analysis. The findings revealed that 387 respondents were young adults, predominantly female, and mostly freshmen. While 85% of the students had not been vaccinated, 65% expressed a willingness to receive the vaccine. The study highlighted that students generally perceived themselves as vulnerable to COVID-19 and acknowledged its severe impact. They also demonstrated confidence in the vaccine's ability to prevent the disease and viewed vaccination as a means to protect others and alleviate their fear of COVID-19-related illness. Additionally, it was found that students' beliefs about their susceptibility and the severity of COVID-19 significantly influenced their willingness to be vaccinated, with an effect size of 2.60%. This indicates that those who perceive themselves as more at risk are more likely to be willing to get vaccinated. These findings emphasize the need to address individuals' perceptions of risk and severity in shaping their attitudes toward vaccination. Therefore, it is recommended that the government intensify its information campaigns, focusing on enhancing community understanding of susceptibility and severity to improve public health policies and increase vaccination uptake.

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Introduction

"The COVID-19 crisis may have passed, but a harsh lesson remains: the world is woefully unprepared for the next pandemic," remarked António Guterres, United Nations Secretary-General, on the International Day of Epidemic Preparedness (December 24, 2024), as cited in the lead editorial of The Lancet (2025). WHO Director-General Tedros Adhanom Ghebreyesus echoed this sentiment, noting that, although some critical lessons from COVID-19 have been learned, many of the systemic weaknesses and vulnerabilities that allowed the pandemic to spread five years ago persist.

It could have been remembered that COVID-19 pandemic has caused widespread health, social, and economic disruptions on a global scale. In fact Kabagani (2021) of the Philippine News Agency (PNA) reported that, as of December 2021, the Philippines had recorded 271,963,258 confirmed cases, including 5,331,019 deaths. By December 15, 2021, a total of 8,337,664,456 vaccine doses had been administered globally. In rural and remote areas, such as the Arakan Valley of North Cotabato, Philippines, higher education institutions have faced unique challenges in managing the pandemic. These institutions are not only tasked with ensuring the continuity of learning but also with addressing public health issues among their student populations. Rural colleges and universities often contend with limited access to healthcare services, infrastructure gaps, and the dissemination of misinformation, which can hinder the effectiveness of public health initiatives. As key stakeholders in the community, higher education institutions play a critical role in shaping health-related behaviors, fostering awareness, and promoting adherence to COVID-19 measures.

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Despite these challenges, there is a significant gap in understanding the psychological and health belief factors that shape students' attitudes and behaviors toward COVID-19 measures in rural higher education contexts. Existing research has predominantly focused on urban areas or broader population-level trends, with limited attention given to rural student populations who face distinct socio-economic and cultural circumstances. Loreche et al. (2022) emphasized that vaccination decisions are significantly influenced by individual perceptions, which are shaped by the spread of both accurate and misleading information through media, community narratives, and institutional practices. These dynamics are even more pronounced in rural areas, where students often have limited access to reliable information and healthcare services.

This study seeks to address this gap by exploring the factors influencing college students' compliance with COVID-19 vaccination. By examining the psychological and health belief factors that affect student behaviors, this research aims to provide insights into how higher education institutions in rural settings can better support public health efforts. The findings will guide evidence-based strategies that enhance public health engagement, promote student well-being, and strengthen institutional responses to public health crises in rural areas.

Specifically, this study aims to address the following questions:

1. What constitutes the demographic characteristics of the respondents?
2. What is the vaccination status of college students in terms of those who have been vaccinated and those who have not?
3. What is the extent of students' willingness to be vaccinated?
4. What are students' attitudes on COVID-19 measures in terms of susceptibility, severity, benefits, and barriers?
5. Does students' attitude on COVID-19 measures significantly influence their willingness to be vaccinated?

Methodology:

The study utilized a quantitative research design with an online survey method to address the research questions systematically. This method was selected due to the restrictions imposed by the COVID-19 pandemic, which limited face-to-face interactions and prioritized student safety. The survey instrument used in the study was adapted, with permission, from the questionnaire developed by Dr. Giao Huynh et al. (2020). To ensure relevance to the current research, minor modifications were made to the instrument. The questionnaire consisted of items measured on a Likert scale ranging from 1 (lowest) to 5 (highest), assessing key constructs such as students' perceived susceptibility to COVID-19, perceived severity of the disease, perceived benefits of vaccination, and perceived barriers to vaccination. A total of 462 Filipino college students voluntarily participated in the study. Participants were randomly selected from the officially enrolled population during the academic year 2020–2021 at the Cotabato Foundation College of Science and Technology (CFCST). CFCST is a state college located in the rural hinterlands of Doroluman, Arakan, Cotabato, Philippines. The demographic characteristics of the respondents were analyzed using descriptive statistics, including frequency, percentage, and mean. To investigate the influence of students' attitudes toward COVID-19 vaccination, Binary Logistic Regression (BLR) was employed as the primary analytical tool. The scope of the study is limited to the perceptions of students officially enrolled at CFCST during the height of the COVID-19 pandemic. The findings are not intended to generalize to other populations or contexts outside the study locale. Despite these limitations, the study provides valuable insights into students' attitudes toward COVID-19 vaccination during a critical period, contributing to the broader understanding of vaccine perceptions in rural educational settings.

Results

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The Demographic Characteristics of the Respondents

This section offers a comprehensive insight into the demographic profile of the respondents, encompassing aspects such as age, gender, and year level. It aims to address the research question: ***"What constitutes the demographic profile of the respondents?***. Data shows that out of 462 respondents, majority are within the age bracket of 17-21 years old. From the sample size, 324 are female and 138 are male. Moreover, it is evident in the table that most of them are freshmen students.

Table 1. Demographic Profile of the Respondents (N=462).

Age	f
17-21 years old	387
22-26 years old	64
27-31 years old	8
32-36 years old	3
Sex	
Male	138
Female	324
Year Level	
First	335
Second	36
Third	62
Fourth	27

Vaccination Status

This section aims to give the readers an information on the vaccination status of college students by distinguishing between those who have been vaccinated and those who have not. Furthermore, it provides data of the health behavior of the respondents towards government vaccination initiatives. This section addresses the following research inquiries: ***What is the vaccination status of college students in terms of those who have been vaccinated and who are not?; What is the extent of students' willingness to be vaccinated?***

As depicted in Table 2, a significant disparity of 392 students from the total population were are not vaccinated at the time of data collection while 69 are already vaccinated. The data indicates that 65% of respondents, 299 individuals, are positively inclined to avail the vaccine. Conversely, 155 respondents, comprising 35% of the total sample size of 462, express a negative attitude towards vaccination.

Table 2. Frequency Distribution on Vaccination Status and Acceptance (N=462).

Vaccinated	69
Not vaccinated	393
Willing to be vaccinated	299
Not willing to be vaccinated	155
Undecided	8

Students Attitude on COVID-19 Measures

This section examines respondents' agreement level regarding statements that assess perceived susceptibility, severity, benefits, and barriers to COVID-19 measures.

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Table 6 illustrates the average distribution of beliefs concerning perceived susceptibility and severity. The results reveal that respondents express significant concern about contracting COVID-19, as shown by an average rating of 3.82. This trend indicates confidence among those who took the survey that they will contract COVID-19, as indicated by their disagreement with this notion and reflected by a mean score of 2.33.

Table 6. Mean Distribution on the attitude of students in COVID-19 measures in terms of perceived susceptibility and severity (N=462).

Statements	Mean	Description
I have a heightened susceptibility to contracting COVID-19.	2.66	Moderately Agree
I anticipate contracting COVID-19 in the near future.	2.33	Disagree
I am at risk of experiencing severe illness if I contract COVID-19.	3.21	Moderately Agree
I am apprehensive about contemplating the possibility of contracting COVID-19.	3.82	Agree
Grand Mean	3.00	Moderately Agree

Table 7 below presents the respondents' beliefs regarding the perceived benefits and barriers associated with COVID-19 immunization. The results reveal a consensus among participants on the effectiveness of immunization in preventing COVID-19 transmission and protecting others. Additionally, respondents indicate decreased concerns about severe illness following immunization. Nonetheless, some participants harbor reservations about the potential adverse effects of the COVID-19 vaccine and express apprehensions about the vaccination costs."

Table 7. Mean Distribution of the Attitude of Students in COVID-19 measures in terms of Perceived Benefits and Barriers (N=462).

Statements	**Mean**	**Description**
I will avoid COVID-19 with vaccination.	3.65	Agree
Immunizing and avoiding COVID-19 will safeguard others.	3.88	Agree
Being inoculated reduces my fear of COVID-19-related sickness.	3.68	Agree
I worry about the side effects of the COVID-19 vaccine.	3.43	Moderately Agree
COVID-19 infection is self-limiting, and immunization is unneeded.	3.10	Moderately Agree
I suppose COVID-19 vaccination will be pricey.	3.30	Moderately Agree
Grand Mean	3.50	Agree

Predictors of Acceptability for Vaccination

This section explains whether or not students' belief in COVID-19 measures significantly affects their willingness to be immunized. It shall also determine what factors strongly and significantly

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predict students' vaccination likelihood. It shall specifically answer the question: ***Does students' attitude on COVID-19 measures significantly influence their willingness to vaccinate?***

The table below displays the Binary Logistic Regression (BLR) analysis results to predict vaccination acceptance. The data illustrates the coefficients, standard errors, Wald values, degrees of freedom, statistical significance levels, and odds ratios associated with the predictors.

The analysis indicates that perceived susceptibility and severity significantly impact vaccination acceptance, with an odds ratio of 13.578. Specifically, a substantial increase of 2.606 in vaccination likelihood is attributed to respondents' perceptions of susceptibility and severity. Conversely, perceived benefits and barriers negatively affect vaccination acceptance, with an odds ratio of 0.309. Specifically, a decrease of -1.176 is associated with perceived benefits and barriers related to the COVID-19 vaccine. As a result, the null hypothesis, which posits that attitudes toward COVID-19 measures have no significant impact on vaccination acceptance, is rejected.

Table 8. Binary Logistic Regression (BLR) in Predicting Acceptability for Vaccination.

Predictors	Binary Coefficients	Standard Error	Wald	df	Significance	Exp (B)
Perceived susceptibility and severity	2.606	.273	91.582	1	.000	13.578
Perceived Benefits and Barriers	-1.176	.192	37.481	1	.000	.309
Constant	-4.294	.845	25.843	1	.000	.014

Discussion

The COVID-19 pandemic, while seemingly behind us, has left critical lessons on epidemic preparedness. As United Nations Secretary-General António Guterres remarked on the International Day of Epidemic Preparedness (December 24, 2024), "The world is woefully unprepared for the next pandemic" (as cited in *The Lancet*, 2025). WHO Director-General Tedros Adhanom Ghebreyesus echoed this sentiment, acknowledging that while some lessons have been learned, many systemic weaknesses that allowed the pandemic to spread still persist.

The findings of this study align with these observations. Despite the availability of the COVID-19 vaccine and the willingness of respondents to get vaccinated, data shows that many students remain unvaccinated. The notable contrast between the proportion of respondents embracing vaccination, as illustrated in Table 2, and those who have already been vaccinated presents an opportunity to delve into the reasons behind the delay in adhering to the government's vaccination program. Exploring this disparity can aid the government in refining its delivery mechanisms to ensure tertiary education students' health and safety.

The Health Belief Model (HBM) reveals that **perceived susceptibility, severity, benefits, barriers**, and **cues to action** are significant predictors of vaccination intention (Alyafei, 2024; Adiyoso et al., 2023). These factors shape individuals' perceptions of health threats and the value they place on achieving health-related goals, which in turn influences their vaccination decisions.

The hesitancy observed among students despite vaccine availability may be attributed to their perceived risks. According to HBM, when individuals perceive a high probability of getting sick and suffering from a disease, they are more likely to engage in preventive health behaviors, such as vaccination. In this study, students were 13 times more likely to get vaccinated due to their perceived susceptibility. This finding is consistent with research by Khayyam et al. (2022), who found a positive association between perceived susceptibility and COVID-19 vaccination behavior. Similarly, Alshagrawi (2024) emphasized the importance of perceived susceptibility in predicting COVID-19

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vaccination intentions. Addressing these perceptions of risk, along with factors like perceived behavioral control and attitudes, is crucial for designing effective public health strategies to encourage vaccination. Giuliani et al. (2021) also highlighted that factors such as trust in science, prior vaccination behavior, and the belief that COVID-19 poses a greater threat than the common flu are linked to positive vaccination intentions.

In addition to perceived susceptibility, **perceived severity** has been identified as another strong predictor of vaccination intentions. Studies by Ventonen, Douglas-Smith, and Hatin (2024) found that individuals who view COVID-19 as a severe threat are more likely to seek additional doses of the vaccine. This finding aligns with HBM, which posits that when individuals perceive a health threat as severe, they are more likely to engage in preventive behaviors. Waterschoot et al. (2024) further emphasized the role of perceived severity in motivating adherence to health-protective measures during the COVID-19 pandemic. They found that participants reported higher adherence on days with higher hospitalization rates, likely driven by increased perceptions of severity.

An interesting finding in this study was the negative impact of **perceived barriers** on vaccine acceptance. The data revealed that when perceived barriers outweigh perceived benefits, the likelihood of vaccination decreases by 30%. Mohammed et al. (2023) identified key perceived barriers contributing to vaccine rejection, including beliefs that COVID-19 vaccines are ineffective, have adverse effects, or may make individuals sick. Additionally, many respondents attributed vaccine rejection to scaremongering. Similarly, Nga et al. (2023) found that perceived access barriers negatively influenced individuals' intentions to get vaccinated.

In conclusion, the findings suggest that both **perceived susceptibility** and **perceived severity** are crucial predictors of vaccination intention. However, when individuals perceive barriers—such as the belief that the vaccine is ineffective or harmful—these perceptions can significantly reduce the likelihood of vaccination. Public health campaigns should focus on addressing these barriers by providing clear, evidence-based information about the safety and benefits of the vaccine, while also emphasizing the severity of the disease and the importance of vaccination in reducing health risks. Building trust in healthcare workers and the broader healthcare system, along with addressing fears and misconceptions, can help increase vaccination uptake and improve pandemic preparedness in the future.

Conclusion and Suggestions:

Drawing from the findings above, several key conclusions can be inferred:

A significant portion of the respondents comprises adolescents, predominantly females, and primarily in their first year of college. The data indicates that a substantial proportion of the respondents have not undergone vaccination, yet a prevalent willingness exists among them to embrace vaccination. Moreover, the respondents are inclined to believe that vaccination can alleviate their susceptibility to and the severity of COVID-19, alongside acknowledging the associated benefits. A predictive pattern emerges wherein respondents' willingness to be vaccinated is notably influenced by their perceptions of susceptibility and severity concerning the virus.

In light of these conclusions, the following recommendations are proposed:

1. Implement targeted educational campaigns to enhance college students' awareness of the importance of COVID-19 vaccination, focusing on addressing misconceptions and fostering informed decision-making.

2. Establish accessible vaccination clinics or campaigns close to educational institutions to facilitate ease of access and uptake among students.

3. Encourage open dialogues and discussions within the college community to address vaccination-related concerns and barriers, fostering a supportive environment conducive to informed decision-making.

4. Collaborate with healthcare professionals and student organizations to organize informational sessions or workshops to address specific concerns and queries regarding COVID-19 vaccination, fostering a culture of health literacy and proactive healthcare engagement among students.

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New Knowledge and the Effects on Society and Communities:

Individuals' inclination to submit themselves to government immunization measures is significantly impacted by their perceptions of their vulnerability and the seriousness of the virus. Therefore, educational interventions in various colleges and universities must prioritize improving knowledge regarding the advantages of vaccination and providing accurate information about the obstacles that lead to students' reluctance to immunization. This can be achieved through disseminating mass media messages and cues, as well as through the active involvement of government healthcare workers in promoting vaccine acceptance.

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