University personnel and students’ perspective on COVID-19 vaccine acceptability

Jomell M. Santiago, Angelo R. Santos

1College of Education, Nueva Ecija University of Science and Technology San Isidro Campus, San Isidro, Nueva Ecija, Philippines
2College of Management and Business Technology, Nueva Ecija University of Science and Technology San Isidro Campus, San Isidro, Nueva Ecija, Philippines

ABSTRACT

Vaccines are life-saving technology that has led to the eradication, containment, or control of infectious illnesses around the globe. Many factors affect the vaccine acceptability of an individual. Thus, this study was conducted to determine the coronavirus disease 2019 (COVID-19) vaccine acceptability and the willingness of the students, faculty and staff of Nueva Ecija University of Science and Technology (NEUST) to get vaccinated. A descriptive study approach and total sampling were adopted. A questionnaire was constructed to collect data on the respondents' profile, their source of information and statements regarding their acceptability and willingness to get vaccinated by the COVID-19 vaccine. Informed consent and permission to conduct were acquired. Various statistical tools were used to analyze the data. The vaccine acceptability was generally high and most were willing to get vaccinated. Their primary source of information was from television and social media on the internet. Their willingness to get vaccinated was influenced by their age, gender and the group where they belong in the university. Although more respondents are willing to get vaccinated, some still do not want to get vaccinated. Therefore, health education campaigns and vaccine promotion should be conducted to improve vaccine acceptance during the roll-out of the COVID-19 vaccine.

Keywords: COVID-19, Perspective on COVID-19, Vaccine, Vaccine acceptability

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Corresponding Author:

Jomell M. Santiago
College of Education, Nueva Ecija University of Science and Technology San Isidro Campus
3106 Poblacion, San Isidro, Nueva Ecija, Philippines
Email: jomellsantiago8854@gmail.com

1. INTRODUCTION

The virus that causes coronavirus disease 2019 (COVID-19) is the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) [1]. Due to the spread of this viral disease, which has affected all parts of life across the globe, the world is seeing a vast global humanitarian calamity. The coronavirus disease 2019 outbreak has caused the terrible loss of many lives and massive economic and social upheaval around the world [2], [3]. Many nations have established severe precautions, legislation, and non-pharmaceutical interventions to combat the spread of COVID-19, including the mandatory use of a face cover or mask, social separation, and other measures [4], [5]. However, the preventive measures done were neither enough nor sufficient to stop the contagion. Therefore, the development and deployment of vaccines, one of the most promising health intervention strategies to confine and stop the pandemic, is indeed necessary as soon as possible [6], [7].

Vaccinations are one of the most effective and cost-efficient public health interventions ever developed that save hundreds of millions of lives each year [8], [9]. Vaccines are life-saving technology that
has led to the eradication, containment, or control of infectious illnesses around the globe [10]. Following the discovery of the severe acute respiratory syndrome coronavirus (SARS-CoV-2) genome sequence in early 2020 [11] and the World Health Organization’s (WHO) announcement of the pandemic in March 2020 [12], scientists and pharmaceutical companies around the world are racing against time to develop vaccines [13], [14]. A vaccine is a substance that encourages a person’s immune system to produce immunity to a certain disease, therefore protecting them from it [15].

Countries worldwide are working hard to create a vaccine to combat the COVID-19 virus [16], [17]. Although the development and deployment of vaccines are badly needed as quickly as possible, it is still vital to ensure that vaccines must be developed without compromising their safety and efficacy. They underwent rigorous clinical trials before the public would use them. Many of COVID-19 vaccines are currently in human trials. The Pfizer/BioNTech comirnaty vaccine was added to the WHO’s emergency use list on December 31, 2020. AstraZeneca follows it on February 16, 2021, and Moderna on April 30, 2021 [18]. The first vaccines to be marketed were the Pfizer/BioNtech comirnaty [19] and Moderna [20] vaccines, followed by the vaccines from AstraZeneca Vaxzevria® [21]. Pfizer-BioNTech, Oxford-AstraZeneca, CoronaVac (Sinovac), Gamaleya Sputnik V, Johnson & Johnson's Janssen, Bharat BioTech, Novavax, and Moderna were among the COVID-19 vaccines receiving emergency use authorization (EUA) clearances by the Philippine Food and Drug Administration [22].

With the recent approval of COVID-19 vaccines, there is a growing sense of optimism that herd immunity will bring the pandemic to an end [23], [24]. As of June 17, 2021, there are 14,205,870 total doses delivered in the Philippines. The government aims to vaccinate 70% of Filipinos in 2021 to acquire herd immunity [25]. As of June 20, 2021, nearly 6.3 million Filipino have already received the first of two doses of the COVID-19 vaccine, representing more than 4% of the country’s population and roughly 2.2 million have already received both doses of the vaccine [26]. According to national research findings, reaching the vaccination coverage required to achieve herd immunity is hampered by uncertainty and unwillingness to be vaccinated against COVID-19 [27]. Several studies about vaccine acceptability have been carried out. However, the study about the acceptability of the COVID-19 vaccine among Filipinos is still rare. Therefore, this study aimed to determine the COVID-19 vaccine acceptability and the willingness to get vaccinated of the students, faculty and staff of Nueva Ecija University of Science and Technology (NEUST) and the socio-demographic factors that affect their willingness to get vaccinated.

2. RESEARCH METHOD

During the roll-out of the COVID-19 vaccine in the Philippines, a descriptive research approach was utilized to analyze the acceptance and willingness of students, teachers, and staff at Nueva Ecija University of Science and Technology. It was initiated in February and completed in June, 2021. Total sampling was used and the target population was all the students, faculty and staff who have an active Messenger account and internet access. There were 1,976 participated and gave consent to take part in the study.

The questionnaire made for the study was based on numerous related literatures. The questionnaire was divided into four sections: the first contained questions about their profile (age, gender, respondents' type, and campus where they are affiliated) [28]; the second contained questions about the source of information from which the respondents learned about the COVID-19 vaccine; and the third contained statements about their acceptability of the COVID-19 vaccine, which included the efficacy rate [29], [30], vaccine type [31], and the country of origin. Following an extensive study of the literature published in English and expert opinions, the questionnaire were modified for content, language, and cultural appropriateness. Pre-testing and revisions were made to the questionnaire. Due to the continuous implementation of community quarantine in the entire country, which resulted in the suspension of face-to-face classes and adoption of work from the home scheme for most university personnel, the data was gathered using a Google Form as a questionnaire.

The Office of the University President was approached for permission. The respondent required to give informed consent before they could answer the questionnaire. The subjects’ privacy and confidentiality were respected, and they were given sufficient time to respond to the questions.

All completed questions were validated and double-checked. The information from the Google Form was then imported into statistical packages for social sciences (SPSS). The author double-checked and cleansed all data files until they were ready for evaluation. The responses to their COVID-19 vaccine acceptability in terms of its five parameters using the Likert scale was measured their level of acceptability by nine statements which stand for the five parameters. A single question measured the response to their willingness to get a COVID-19 vaccine. Frequency and percentage were calculated for the socio-demographic profile and information sources. A one-way analysis of variance (ANOVA) was used to determine if there were any significant differences in their profiles when it came to their willingness to get
vaccinated with the COVID-19 vaccine. Pearson correlation was used to see if there was a link between their vaccine acceptability and their willingness to get vaccinated with the COVID-19 vaccine.

3. RESULTS AND DISCUSSION

3.1. Socio-demographic profile of the respondents

A total of 1,976 people were chosen to participate in the study. Majority (96.7%) belong to the youth group where the age ranges from 15 to 47 years of age and (57.3%) were females. Most of them (92.1%) were students and almost all respondents are from Sumacab and General Tinio Campus, both reside in the city of Cabanatuan, 537 (27.2%) and 523 (26.5%), respectively as presented in Table 1.

Table 1. Socio-demographic profile of the respondents

| Socio-demographic profile | Frequency (f) | Percentage (%) |
|---------------------------|--------------|----------------|
| Age                       |              |                |
| Pediatric group (0-14)    | 26           | 1.3            |
| Youth group (15-47)      | 1,911        | 96.7           |
| Middle-age group (48-63) | 39           | 2.0            |
| Gender                    |              |                |
| Male                      | 817          | 41.3           |
| Female                    | 1,132        | 57.3           |
| Prefer not to say         | 27           | 1.4            |
| Type of respondent        |              |                |
| Student                   | 1,819        | 92.1           |
| Faculty                   | 126          | 6.4            |
| Non-teaching staff        | 28           | 1.4            |
| Administration            | 3            | 0.2            |
| Campus                    |              |                |
| Sumacab                   | 537          | 27.2           |
| General Tinio             | 523          | 26.5           |
| Atate                     | 2            | 0.1            |
| Gabaldon                  | 142          | 7.2            |
| Fort Magsaysay            | 12           | 0.6            |
| San Isidro                | 368          | 18.6           |
| San Antonio               | 190          | 9.6            |
| San Leonardo              | 3            | 0.2            |
| Caranglan                 | 38           | 1.9            |
| Papaya                    | 161          | 8.16           |

3.2. Source of information of the respondents about COVID-19 vaccine

Table 2 shows the source of knowledge of the respondents. Based on the result, their primary source of knowledge, or 1,596 (80.8%), is from the news they watch on television. The studies of [32], [33] supported the result, wherein their respondents responded that their information about the COVID-19, which included the COVID-19 vaccine, was obtained through traditional media like television. It is followed by the articles they read on different social media platforms like Facebook. The same result was obtained by [34], [35] that the internet and TV were the main sources of their participants’ information about COVID-19 and its vaccine. Furthermore, most of the available information was in English, making it more understandable to the respondents [36].

Table 2. Sources of information of the respondents about COVID-19 vaccine

| Sources of information | Frequency (f) | Percentage (%) |
|------------------------|--------------|----------------|
| Television             | 1,596        | 80.8           |
| Radio                  | 22           | 1.1            |
| Newspaper              | 164          | 8.3            |
| Social media           | 1,520        | 76.9           |
| Scientific articles    | 374          | 18.8           |
| Pharmaceutical report  | 138          | 7.0            |
| Healthcare providers   | 502          | 25.4           |

3.3. COVID-19 vaccine acceptability of the respondents

According to the study’s findings, the acceptability of the respondents towards all the nine brands of COVID-19 vaccine in terms of its efficacy rate was acceptable with an overall weighted mean of 2.83. The brand that obtained the highest weighted mean (3.10) was the Pfizer–BioNTech vaccine with a 95% efficacy
rate as shown in Table 3. The possible reason for this is that individuals prefer vaccines with higher efficacy rates as they believe that a vaccine with higher efficacy is more effective than those with a lower efficacy. According to the article written by [37], scientists define vaccine efficacy as how well it performs in a carefully controlled trial and they mistakenly believe that it is equivalent to the vaccine’s effectiveness or performance in the real world.

| COVID-19 vaccine brand | Efficacy rate | Very acceptable | Acceptable | Not acceptable | Not very acceptable | Weighted mean | Verbal interpretation |
|------------------------|--------------|----------------|-----------|----------------|-------------------|--------------|----------------------|
| 1. Pfizer–BioNTech     | 95%          | 495            | 25.1     | 1,223          | 61.9              | 211          | 10.7                | 3.10±0.67 Acceptable |
| 2. Moderna             | 94.5%        | 387            | 19.6     | 1,273          | 64.4              | 264          | 13.4                | 3.01±0.66 Acceptable |
| 3. Oxford–AstraZeneca  | 70% (2nd dose) | 235          | 11.9     | 1,228          | 62.1              | 442          | 22.4                | 2.82±0.67 Acceptable |
| 4. CoronaVac/Sinovac   | 50.38% in Brazil and 65% in Indonesia | 173 | 8.8 | 1,068 | 54.0 | 601 | 30.4 | 134 | 6.8 | 2.65±0.73 Acceptable |
| 5. Sputnik V           | 91.4%        | 315            | 15.9     | 1,259          | 63.7              | 335          | 17.0                | 2.92±0.68 Acceptable |
| 6. Johnson & Johnson/Janssen | 72% in USA | 173 | 8.8 | 1,105 | 55.9 | 582 | 29.5 | 116 | 5.9 | 2.68±0.72 Acceptable |
| 7. Novavax             | 90.4%        | 240            | 12.1     | 1,262          | 63.9              | 392          | 19.8                | 2.84±0.68 Acceptable |
| 8. Sinopharm           | 79.34% (Overall) | 164          | 8.3     | 1,129          | 57.1              | 572          | 28.9                | 1.11±0.56 Acceptable |
| 9. Bharat Biotech/Covaxin | 70% (for symptomatic) | 195          | 9.9     | 1,190          | 60.2              | 496          | 25.1                | 2.75±0.69 Acceptable |

Overall efficacy rate acceptability: 2.83±0.56 Acceptable

Legend: F = Frequency; % = Percentage; 3.26 – 4.00 = Very acceptable, 2.51 – 3.25 = Acceptable, 1.76 – 2.50 = Not acceptable

Next, in terms of its vaccine type, all brands of COVID-19 vaccine were also acceptable, with an overall weighted mean of 2.89. The brand that obtained the highest weighted mean was the Pfizer–BioNTech (3.09) and Moderna (3.01) vaccine; both were mRNA-based vaccines as shown in Table 4. This could be because Messenger RNA vaccines, often known as mRNA vaccines, were the first COVID-19 vaccines to be approved for use. Aside from being the first COVID-19 vaccine developed, it is a new type of vaccine that protects an individual against infectious diseases like COVID-19. Many vaccines put a weakened or inactivated germ into our bodies to trigger an immune response. On the other hand, mRNA vaccines tell our cells how to make a protein—or even just a piece of a protein—that triggers an immune response in our bodies. If a virus penetrates our bodies, the immune response, which produces antibodies, shields us from infection. The benefit of mRNA vaccines, as with other vaccines, is that people who are vaccinated obtain protection without ever having to incur the serious consequences of contracting COVID-19. The live virus that causes COVID-19 is not used in mRNA vaccines, and it never enters the nucleus of the cell, which is where our DNA (genetic material) is maintained [38].

| COVID-19 vaccine brand | Vaccine type | Very acceptable | Acceptable | Not acceptable | Not very acceptable | Weighted mean | Verbal interpretation |
|------------------------|--------------|----------------|-----------|----------------|-------------------|--------------|----------------------|
| 1. Pfizer–BioNTech     | mRNA-based   | 489            | 24.7     | 1,226          | 62.0              | 216          | 10.9                | 3.09±0.66 Acceptable |
| 2. Moderna             | mRNA-based   | 394            | 19.9     | 1,256          | 63.6              | 283          | 14.3                | 3.01±0.66 Acceptable |
| 3. Oxford–AstraZeneca  | Viral vector | 322            | 16.3     | 1,252          | 63.4              | 354          | 17.9                | 2.94±0.66 Acceptable |
| 4. CoronaVac/Sinovac   | Inactivated virus-based | 245 | 12.4 | 1,229 | 62.2 | 438 | 22.2 | 64 | 3.2 | 2.84±0.67 Acceptable |
| 5. Sputnik V           | Viral vector | 256            | 13.0     | 1,241          | 62.8              | 423          | 21.4                | 2.86±0.66 Acceptable |
| 6. Johnson & Johnson/Janssen | Viral vector | 222 | 11.2 | 1,204 | 60.9 | 479 | 24.2 | 71 | 3.6 | 2.80±0.68 Acceptable |
| 7. Novavax             | Protein-based | 239 | 12.1 | 1,278 | 64.7 | 397 | 20.1 | 62 | 3.1 | 2.86±0.65 Acceptable |
| 8. Sinopharm           | Inactivated virus-based | 202 | 10.2 | 1,187 | 60.1 | 519 | 26.3 | 68 | 3.4 | 2.77±0.67 Acceptable |
| 9. Bharat Biotech/Covaxin | Viral vector | 180 | 9.1 | 1,239 | 62.7 | 487 | 24.6 | 76 | 3.5 | 2.77±0.65 Acceptable |

Overall vaccine type acceptability: 2.89±0.54 Acceptable

Legend: F = Frequency; % = Percentage; 3.26 – 4.00 = Very acceptable, 2.51 – 3.25 = Acceptable, 1.76 – 2.50 = Not acceptable

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Next, in terms of its country of origin, all brands of COVID-19 vaccine were also acceptable, with an overall weighted mean of 2.91. The brand that obtained the highest weighted mean was the Pfizer–BioNTech (3.11) from the USA and Germany as presented in Table 5. The result was supported by the news from [39], [40]. There are only 19% of Filipinos were eager to be vaccinated, with the highest level of trust in vaccinations from the United States (41%) [39]. In addition, 63% of Filipinos prefer COVID-19 vaccines made in the United States, such as those made by Pfizer and Moderna [40].

| COVID-19 vaccine brand | Country of origin | Very acceptable | Acceptable | Not acceptable | Not very acceptable | Weighted mean | Verbal interpretation |
|------------------------|-------------------|-----------------|------------|----------------|--------------------|--------------|----------------------|
| 1. Pfizer–BioNTech     | USA and Germany   | 502             | 25.4       | 1,229          | 62.2               | 200          | 10.1                | 45                   | 2.3                | 3.11±0.66          | Acceptable          |
| 2. Moderna             | USA               | 429             | 21.7       | 1,273          | 64.4               | 233          | 11.8               | 41                   | 2.1                | 3.06±0.64          | Acceptable          |
| 3. Oxford–AstraZeneca  | UK and Sweden     | 380             | 19.2       | 1,267          | 64.1               | 288          | 14.6               | 41                   | 2.1                | 3.01±0.65          | Acceptable          |
| 4. CoronaVac/Sinovac   | China             | 231             | 11.7       | 1,192          | 60.3               | 455          | 23.0               | 98                   | 5.0                | 2.79±0.71          | Acceptable          |
| 5. Sputnik V           | Russia            | 266             | 13.5       | 1,294          | 65.5               | 362          | 18.3               | 54                   | 2.7                | 2.90±0.65          | Acceptable          |
| 6. Johnson & Johnson/Janssen | USA and Netherlands | 282     | 14.3       | 1,246          | 63.1               | 395          | 20.0               | 53                   | 2.7                | 2.89±0.66          | Acceptable          |
| 7. Novavax             | USA               | 323             | 16.3       | 1,243          | 62.9               | 355          | 18.0               | 55                   | 2.8                | 2.93±0.67          | Acceptable          |
| 8. Sinopharm           | China             | 205             | 10.4       | 1,160          | 58.7               | 511          | 25.9               | 100                  | 5.1                | 2.74±0.71          | Acceptable          |
| 9. Bharat Biotech/Covaxin | India             | 231             | 11.7       | 1,223          | 61.9               | 444          | 22.5               | 78                   | 3.9                | 2.81±0.68          | Acceptable          |

Overall country of origin acceptability: 2.91±0.54 Acceptable

Legend: F = Frequency; % = Percentage; 3.26 – 4.00 = Very acceptable, 2.51 – 3.25 = Acceptable, 1.76 – 2.50 = Not acceptable

Meanwhile, in terms of its price, all brands of COVID-19 vaccine were also acceptable, with an overall weighted mean of 2.74. The brand that obtained the highest weighted mean was the Oxford–AstraZeneca (2.92), with a price that amounted to P610 or $13 as shown in Table 6. According to [41], the cost of the vaccine is one of the most critical variables that will inspire more individuals to adopt the vaccine and get vaccinated. An individual may have confidence in a vaccine’s safety and be motivated to get vaccinated, but not being able to afford the vaccine's price may result in them choosing not to get vaccinated [42]. If the vaccines were provided freely, many would like to be vaccinated [43]. The COVID-19 vaccine being provided by the Philippine government, regardless of brand, was free of charge.

| COVID-19 vaccine brand | Price | Very acceptable | Acceptable | Not acceptable | Not very acceptable | Weighted mean | Verbal interpretation |
|------------------------|-------|-----------------|------------|----------------|--------------------|--------------|----------------------|
| 1. Pfizer–BioNTech     | Up to P1,000 or $19.50 | 325     | 16.4       | 1,122          | 56.8               | 460          | 23.3               | 69                   | 3.5                | 2.86±0.72          | Acceptable          |
| 2. Moderna             | Up to P1,250 or $25     | 193     | 9.8        | 1,057          | 53.5               | 648          | 32.8               | 78                   | 3.9                | 2.69±0.70          | Acceptable          |
| 3. Oxford–AstraZeneca  | Up to P100 or $2.15     | 356     | 18.0       | 1,172          | 59.3               | 380          | 19.2               | 68                   | 3.4                | 2.92±0.71          | Acceptable          |
| 4. CoronaVac/Sinovac   | Up to P3,000 or $60     | 153     | 7.7        | 1,017          | 51.5               | 662          | 33.5               | 144                  | 7.3                | 2.60±0.74          | Acceptable          |
| 5. Sputnik V           | Up to P500 or $10       | 206     | 10.4       | 1,176          | 59.5               | 521          | 26.4               | 73                   | 3.7                | 2.77±0.68          | Acceptable          |
| 6. Johnson & Johnson/Janssen | Up to P500 or $10       | 249     | 12.6       | 1,177          | 59.6               | 468          | 23.7               | 82                   | 4.1                | 2.81±0.70          | Acceptable          |
| 7. Novavax             | Up to P800 or $16       | 196     | 9.9        | 1,151          | 58.2               | 542          | 27.4               | 87                   | 4.4                | 2.74±0.69          | Acceptable          |
| 8. Sinopharm           | Up to P7,200 or $150    | 143     | 7.2        | 907            | 45.9               | 743          | 37.6               | 183                  | 9.3                | 2.52±0.76          | Acceptable          |
| 9. Bharat Biotech/Covaxin | Up to P100 or $2       | 264     | 13.4       | 1,139          | 57.6               | 486          | 24.6               | 87                   | 4.4                | 2.80±0.72          | Acceptable          |

Overall price acceptability: 2.74±0.58 Acceptable

Legend: F = Frequency; % = Percentage; 3.26 – 4.00 = Very acceptable, 2.51 – 3.25 = Acceptable, 1.76 – 2.50 = Not acceptable

Last, the overall acceptability of the respondents towards all the nine brands of COVID-19 vaccine was acceptable, with an overall weighted mean of 2.88. The brand that obtained the highest weighted mean was the Pfizer–BioNTech (3.10) as presented in Table 7. It is not surprised to come up with the result since

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Pfizer–BioNTech vaccine was the top choice of the respondents in almost all aspects. The study of Bautista et al. [44] also in line with the current result. They found that Comirnaty or the Pfizer–BioNTech vaccine was the most preferred type of COVID-19 vaccine.

Table 7. COVID-19 vaccine acceptability in terms of its overall acceptability

| COVID-19 vaccine brand | Very acceptable F | Acceptable F | Not acceptable F | Not very acceptable F | Weighted mean | Verbal interpretation |
|------------------------|------------------|--------------|------------------|-----------------------|---------------|-----------------------|
| 1. Pfizer–BioNTech     | 510 (25.8)       | 1,212 (61.3) | 207 (10.5)       | 47 (2.4)              | 3.10±0.67     | Acceptable            |
| 2. Moderna             | 378 (19.1)       | 1,268 (64.2) | 286 (14.5)       | 44 (2.2)              | 3.08±0.65     | Acceptable            |
| 3. Oxford –AstraZeneca | 347 (17.6)       | 1,263 (63.9) | 316 (16.0)       | 50 (2.2)              | 2.97±0.66     | Acceptable            |
| 4. CoronaVac/Sinovac   | 255 (12.9)       | 1,216 (61.5) | 422 (21.4)       | 83 (4.2)              | 2.83±0.69     | Acceptable            |
| 5. Sputnik V           | 245 (12.4)       | 1,255 (63.5) | 420 (21.3)       | 56 (2.8)              | 2.85±0.66     | Acceptable            |
| 6. Johnson & Johnson/Janssen | 210 (10.6)     | 1,240 (62.8) | 458 (23.2)       | 68 (3.4)              | 2.81±0.66     | Acceptable            |
| 7. Novavax             | 214 (10.8)       | 1,251 (63.3) | 442 (22.4)       | 69 (3.5)              | 2.81±0.66     | Acceptable            |
| 8. Sinopharm           | 179 (9.1)        | 1,195 (60.5) | 522 (26.4)       | 80 (4.0)              | 2.75±0.67     | Acceptable            |
| 9. Bharat Biotech/Covaxin | 188 (9.1)      | 1,229 (62.2) | 484 (24.5)       | 75 (3.8)              | 2.77±0.66     | Acceptable            |
| Overall Acceptability  |                 |              |                  |                      | 2.88±0.54     | Acceptable            |

Legend: F=Frequency; %=Percentage; 3.26 – 4.00=Very acceptable; 2.51 – 3.25=Acceptable; 1.76 – 2.50=Not acceptable

3.4. Willingness of the respondents to get vaccinated by COVID-19 vaccine

Table 8 illustrates the respondents’ willingness to be vaccinated with the COVID-19 vaccine. Demographic factors influenced people's willingness to get vaccinated. Half of the pediatric group or 13 (50%) somewhat agree to get vaccinated, and most or 21 (53.8%) of the respondents from the middle-age group completely agree to get vaccinated. However, only 699 (36.6%) somewhat agree and 465 (24.3%) completely agree to get vaccinated in the youth group. Of the male respondents, most or 307 (37.6%) and 408 (35.7%) among the female respondents somewhat agree to get vaccinated. Among the students, 676 (37.2%) somewhat agree and 398 (21.9%) completely agree to get vaccinated. Half to more than half completely agree for the faculty and staff, while all of the respondents from administration completely agree to get vaccinated as shown in Table 8.

Table 8. Willingness of the respondents to get vaccinated by COVID-19 vaccine

| Variables                   | Completely agree to get vaccinated | Somewhat agree to get vaccinated | Somewhat disagree to get vaccinated | Completely disagree to get vaccinated | p-value |
|-----------------------------|-----------------------------------|---------------------------------|--------------------------------------|----------------------------------------|---------|
| Age                         | 3 (11.5)                          | 13 (50.0)                       | 4 (15.4)                             | 6 (23.1)                               | 0.00*   |
| Youth group                 | 465 (24.3)                        | 699 (36.6)                      | 443 (23.2)                           | 304 (15.9)                             |         |
| Middle-age group            | 21 (53.8)                         | 12 (30.8)                       | 5 (12.8)                             | 1 (2.6)                                |         |
| Gender                      | 231 (28.3)                        | 307 (37.6)                      | 146 (17.9)                           | 133 (16.3)                             | 0.04*   |
| Male                       | 249 (21.8)                        | 408 (35.7)                      | 301 (26.4)                           | 174 (15.2)                             |         |
| Female                     | 9 (33.3)                          | 33 (33.3)                       | 5 (18.5)                             | 4 (14.8)                               |         |
| Type of respondent                                |                                  |                                  |                                      |                                        |         |
| Student                    | 398 (21.9)                        | 676 (37.2)                      | 440 (24.2)                           | 305 (16.8)                             | 0.00*   |
| Faculty                    | 74 (58.7)                         | 36 (28.6)                       | 12 (9.5)                             | 4 (3.2)                                |         |
| Non-teaching staff          | 14 (50.0)                         | 12 (42.9)                       | 0 (0.0)                              | 2 (7.1)                                |         |
| Administration              | 3 (100.0)                         | 0 (0.0)                         | 0 (0.0)                              | 0 (0.0)                                |         |

However, results of the Kruskal-Wallis's test for the age, gender and type of respondent showed significant differences in the respondents’ demographic characteristics and their willingness to get vaccinated by COVID-19 vaccine. In terms of the age, the middle-age group or those between 48 to 63 earned higher percentages for those who completely agree to get vaccinated than the two age groups and the difference is significant. The result was in contrast to the study of [45], [46]. According to them, older adults lack understanding of vaccination's benefits, thereby affecting their willingness to get vaccinated. In terms of gender, the data showed more male participants who completely and somewhat agree to get vaccinated than their female counterparts. The result was supported by the study of [47], [48]. According to them, males were more likely than females to take the vaccine and participate in COVID-19 vaccine clinical trials in 2020 [49]. Last, in terms of the type of respondent, the faculty, non-teaching staff and part of the administration obtained higher percentages for those who completely agree to get vaccinated than the student participant and the difference is significant.

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One of the main reasons for these is that educational institutions play a vital role in helping promote COVID-19 vaccinations. They are gatekeepers for the health and safety of employees. Without teachers and staff getting vaccinated against COVID-19, there is no such thing as a safe return to work. Meanwhile, possible reasons students have less percentage in terms of their willingness to get vaccinated is due to the safety and effectiveness of the vaccine. In addition, vaccine anxieties stoked by the Dengvaxia scare had lowered immunization rates in the country, even for vaccines that had been proven safe [50].

Table 9 depicts the association between respondents’ willingness to be vaccinated with the COVID-19 vaccine and their vaccine acceptance. Based on the result, all the parameters that describe the vaccine acceptability significantly correlate with the respondents’ willingness to get vaccinated. It only means that those who have responded positively to the different parameters that describe their vaccine acceptability are willing to get vaccinated by the COVID-19 vaccine. For them, if the efficacy rate, type of vaccine, country of origin and the price of the vaccine and its overall acceptability were acceptable, they are willing to get vaccinated. It only means that when they accept the vaccine, in general, they are also willing to get vaccinated.

Table 9. Relationship between the willingness of the respondents to get vaccinated by COVID-19 vaccine to their vaccine acceptability

| Variables                             | Correlation coefficient | p-value |
|---------------------------------------|-------------------------|---------|
| Efficacy rate of the COVID-19 vaccine | 0.370                   | 0.000*  |
| Type of vaccine                       | 0.344                   | 0.000*  |
| Country of origin of the COVID-19 vaccine | 0.344                | 0.000*  |
| Price of the COVID-19 vaccine         | 0.311                   | 0.000*  |
| Overall acceptability of the COVID-19 vaccine | 0.368              | 0.000*  |

Legend: *significant at p<0.05

4. CONCLUSION

This study found that among the students, faculty members and staffs of the Nueva Ecija University of Science and Technology, the COVID-19 vaccine acceptability was generally high and most is willing to get vaccinated. Their primary source of information about the COVID-19 vaccine was from television and social media on the internet. The respondent’s willingness to get vaccinated by the COVID-19 vaccine was influenced by their age, gender, and the group they belong in the university. The willingness is relatively high for those respondents who belong to the youth group, who are male and a faculty and staff in the university compare to their counterparts. The association between their vaccine acceptability and their willingness to get vaccinated is positive. This implies that when the efficacy rate, type of vaccine, country of origin, price, and overall acceptability of the vaccine are acceptable, they are more likely to get vaccinated. Although more respondents are willing to get vaccinated, some still do not want to get vaccinated. Therefore, health education campaigns and vaccine promotion should be conducted to improve vaccine acceptance during the roll-out of the COVID-19 vaccine.

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BIOGRAPHY OF AUTHOR

Jomell Miranda Santiago graduated Bachelor’s Degree in Secondary Education major in General Science at Nueva Ecija University of Science and Technology San Isidro Campus and finished a Master’s Degree in Biology Education at Central Luzon State University. He is currently connected with Nueva Ecija University of Science and Technology as Instructor for two (4) years and has been active in the field of research in recent years. He can be reached by email address: jomellsantiago8854@gmail.com.

Angelo R. Santos graduated Bachelor’s Degree in Business Administration major in Marketing Management at Wesleyan University, Philippines. He finished a Master’s Degree in Business Administration at the same school, currently pushing his Doctor of Philosophy in Business Administration at NEUST. He is presently affiliated with NEUST for two (3) years as Instructor and Head of the University ISO Unit and has been involved in the field of research in recent years. He can be reached by email address: alopogssantos@gmail.com.