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Covid-19 Vaccination: A Study of College Students' Perceptions Regarding Inoculation Post-Covid Infection

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Covid-19 Vaccination: A Study of College Students' Perceptions Regarding Inoculation Post-Covid Infection

An Honors Thesis submitted in partial fulfillment of the requirements for Honors in the College of Nursing

By
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ABSTRACT

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), known as Covid-19, was first identified in China and proclaimed a pandemic in March 2020 by the World Health Organization (WHO). Covid-19 is a virus transmitted via respiratory droplets and becomes airborne when a person who carries the virus coughs, sneezes, or breathes out droplets, and the virus enters a susceptible host. Since the pandemic outbreak, three vaccines have been approved by the Food and Drug Administration (FDA). Despite FDA approval, many Americans are hesitant to receive Covid-19 vaccinations. The perceived severity of SARS-CoV-2 and the perceived safety of the vaccine appear to be the most significant predictors of a person's vaccination status. To gather data to support these assumed predictors, a study was conducted via Qualtrics. The population of the study is twenty-three Georgia Southern University nursing students. Despite no one in the study reporting severe adverse effects, many viewed the vaccine as unsafe. The Johnson and Johnson vaccine was perceived to be the most dangerous, as fifteen out of twenty-three participants voted. Requirements for education or employment and to prevent the spread of Covid-19 were the most popular reasons to be vaccinated, while concern over the quick timeline of the development of the vaccine, disagreement with a Covid-19 vaccine mandate, and religious/medical exemption were the most popular reasons not to be vaccinated.

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In addition to Dr. Matti's support, I have also received support from the School of Nursing, Dr. Melissa Garno, and nursing students on the Statesboro and Armstrong campuses. I was able to collaborate with Dr. Garno, and she agreed to post my survey to the Undergratuate Student Nursing folio page. Her support granted me the opportunity to survey all nursing cohorts on both the Statesboro and Armstrong campuses. Collaboration with the School of Nursing and responses from nursing students made my Honors Thesis possible.

Throughout the entire research process, I received support from my family, friends, and fellow honors students in my cohort. The support that I have received during nursing school has encouraged me to pursue my academic, professional, and personal goals.

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Introduction

The World Health Organization (WHO) declared that Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), first identified in China, was at a pandemic status in March 2020. The first documented case of SARS-CoV-2, also known as Covid-19, in the United States occurred on the west coast in January 2020 and quickly spread across the country. The first documented case of Covid-19 in Bulloch County, Georgia, the location of the Statesboro campus of Georgia Southern University, occurred on March 27, 2020 (Hackle, 2022). Presently, the Georgia Department of Public Health (n.d) reports that there have been 10,542 confirmed cases in Bulloch County, Georgia. Of the 10,542 cases, 372 have led to hospitalization, and 108 have led to death. Additionally, there have been 150 probable deaths. These fatalities are likely from Covid-19, but the person did not have a positive Covid-19 test at the time of death (Georgia Department of Public Health, n.d). As of March 2022, there have been 487 million confirmed cases of Covid-19 worldwide resulting in 6.14 million deaths. Italy had one of the highest death rates worldwide. On April 5, 2022, Stuart (2022) noted that the death toll in Italy was one of the most tragic in the world, resulting in 159,000 deaths. Italy experienced 933 Covid-19 deaths on December 3, 2020, the highest daily death toll since the pandemic began. The United States of America, Italy, and the entire world were affected by the SARS-CoV-2 virus.

Background

Covid-19 is a virus that is transmitted via respiratory droplets. For example, a person infected with Covid-19 coughs, sneezes, or breathes out droplets that another person inhales, leading to infection. Heustess et al. (2021) noted that the symptoms could vary from

asymptomatic to acute respiratory distress syndrome, respiratory failure, and death. Heustess et al. (2021) further stated, "the most common presenting features in adults are fever (up to 90%), dry cough (60–86%), shortness of breath (53–80%), fatigue (38%), myalgia (15–44%), sputum production (33%), sore throat (13.9%), and headache (13.6%)" (para. 5). Symptoms may present as mild to severe, and treatment may range from a few days of at-home rest to a hospital stay with a ventilator (Heustess et al., 2021). Unfortunately, Covid-19 appears unpredictable, and anyone can be susceptible and vulnerable to this deadly virus.

Wang (2020) stressed that although anyone is vulnerable to Covid-19, many common medical conditions increase the mortality of being infected with the virus. Wang additionally (2020) listed diabetes, hypertension, chronic inflammatory pulmonary disease **(**COPD), and heart conditions as comorbidities that increase a patient's risk of death. While these common conditions were noted as risk factors, COPD is the greatest comorbidity. "Covid-19 patients with COPD had a 5.9-fold higher risk of progression than patients without COPD" (Wang, 2020, para. 10).

Tom Shimabukuro (2020), a Centers for Disease Control and Prevention (CDC) Covid Response team member in Atlanta, Georgia, noted that researchers and doctors worked together to create the vaccine. As a result, the Food and Drug Administration (FDA) granted the emergency use of the Pfizer-BioNTech (BNT162b2) Covid-19 vaccination on December 11, 2020 (Shimabukuro, 2020). Khurana (2021) reports nucleoside modified messenger RNA (modRNA) which encodes the viral spike glycoprotein of SARS-CoV-2 is the active ingredient in the Pfizer-BioNTech vaccine. The FDA granted full approval of the Pfizer-BioNTech vaccine in August 2021. The Moderna (mRNA-1273) was approved under emergency authorization by the FDA on December 18, 2020. Khurana (2021) reports synthetic mRNA which encodes the

pre-fusion stabilized spike glycoprotein of SARS-CoV-2 virus is the active ingredient in the Moderna vaccine. (Khurna, 2021, Table 1). The Moderna vaccine was given full approval in January 2022.

Although messenger RNA (mRNA) vaccines have recently been approved for use in the United States, Chris Beyre (2021) noted that studies involving mRNA vaccines began in the 1960s. He explained that messenger RNA's role in the body is to create blueprints for protein synthesis. In a vaccine, mRNA "teaches" the body's cells to create a spike protein. The newly created spike protein allows the immune system to recognize and fight an invading virus (Beyre, 2021). Beyre (2021) also noted, although researchers have understood the concept of using mRNA in vaccines, they did not understand how to protect the mRNA from being destroyed in the body. To avoid this problem, researchers used nanotechnology to wrap the mRNA in a lipid nanoparticle, which protects the mRNA until it enters the cell.

While the Pfizer-BioNTech and Moderna vaccines utilize mRNA, the Johnson and Johnson vaccine is a vector vaccine. It contains a modified virus that is not Covid-19. Katella (2022) stressed that the modified virus cannot replicate in the body but can build immunity to Covid-19. The Johnson and Johnson vaccine was granted emergency approval in February 2021, but the FDA paused the administration of the vaccine in April of 2021 (Katella, 2022). Katella (2022) explained that instances of thrombosis with thrombocytopenia syndrome (TTS), a rare blood clotting disorder, led to the pause. Katella (2022) further informs that after a ten-day pause, the FDA determined that the vaccine's benefits outweighed the potential adverse effects, and the Johnson and Johnson vaccine became available again.

The Pfizer-BioNTech, Moderna, and Johnson and Johnson vaccines share common side effects: pain/swelling at the injection site, malaise, headache, muscle pain, chills, and fever

(Katella, 2022). The FDA issued a warning label for the Pfizer-BioNTech and Moderna vaccines. Katella (2022) states that both vaccines have a rare adverse reaction that causes inflammation of the myocardium (heart muscle) or the pericardium (the outer layer of the heart). She further added that the FDA issued a warning label for the Johnson and Johnson vaccine after Guillain-Barre syndrome, a neurological condition where the immune system attacks the nerves, was reported (Katell, 2022). Katella (2022) reports that most instances of Guillain-Barre syndrome occur within 42 days of vaccination. The FDA added a second warning label to the Johnson and Johnson vaccine in April 2020. Katella (2022) explains that the second warning label was added after reports of thrombosis with thrombocytopenia syndrome (TTS).

In addition to common side effects and rare adverse reactions, allergic reactions to the vaccines can occur. Shimabukuro (2020) reported, "twenty-one cases of anaphylaxis after administration of a reported 1, 893, 360 doses of the Pfizer-BioNTech Covid-19 vaccine" (para. 2). Shimabukuro (2020) also noted that anaphylaxis, a life-threatening allergic reaction, typically occurred within the first 15 minutes after vaccination, with most of the anaphylaxis cases occurring in women and people with previous allergies. More specifically, "most persons with anaphylaxis (81%) had a history of allergies or allergic reactions," and "most (90%) reported anaphylaxis cases…occurred in women" (Shimabukuro, 2020, para. 7).

Side effects, adverse reactions, and allergic reactions appeared to lead to a negative view of the Covid-19 vaccines. Karlsson et al. (2021) explained that the population's opinion on whether the vaccine is safe or unsafe influences one's opinion to be vaccinated. She wrote, "when there is a lack of information and experience about the safety of a new vaccine, people tend to form their opinions based on attitudes to existing vaccines" (Karlsson, 2021, para. 6). She hypothesized that mistrust of the Pandemrix vaccine contributed to the skepticism of the Covid-

19 vaccines. Pandemrix was developed to combat the 2009 pandemic of swine flu, but controversy arose due to a suspected link between the Pandemrix vaccine and narcolepsy (Karlsson, 2021). After investigation, the Centers for Disease Control and Prevention (CDC) (2020) reported, "vaccination with influenza vaccines containing the 2009 H1N1 virus strain used in the United States was not associated with an increased risk for narcolepsy" (para. 5). Despite assurance from the CDC, Karlsson et al. (2020) noted that the American public continued to be skeptical of the Pandemrix vaccine. The Covid-19 vaccine and Pandemrix are similar due to skepticism despite reassurance from the CDC.

A second factor determining people's vaccination status is their perception of the severity of the illness, as noted by Karlsson et al. (2020). Furthermore, she explained, "individuals who perceive the risk of contracting a vaccine-preventable disease as low, consider the symptoms of the disease as mild, and worry little about the disease, report less intent to take the vaccines and more often remain unvaccinated" (Karlsson et al., 2020, para. 3). According to Karlsson et al. (2020), public opinion surrounding the vaccine seems to influence one's vaccination decision.

Nawaz Ali (2021) studied the American perception of the Covid-19 vaccines by analyzing "tweets" on Twitter. Ali reported, "10% to 40% of people in the US are COVID-19 vaccine-hesitant" (para. 21). He also found, "22% of people who have lower levels of education and household income and perceived threats of getting infected are more hesitant to receive COVID-19 vaccines" (Ali, 2021, para. 23). Although almost a quarter of people with a low socioeconomic status mistrust the vaccine, hesitancy about the Covid-19 vaccine appears to extend across all socioeconomic groups. Ali (2021) additionally reported, "23% of medical students in the US are hesitant to take the COVID-19 vaccine immediately after approval from the US Food and Drug Administration" (para. 24). Research evidence leads one to believe that

hesitancy regarding the Covid-19 vaccine is not limited by socioeconomic status. Rather, reluctance stems from the perceived safety of the vaccines and the perceived severity of the Covid-19 virus.

Hypothesis

The research investigation aims to determine School of Nursing student's perceptions regarding inoculation post-Covid-19 infection. The quantitative study was conducted on both the Statesboro and Armstrong campuses of Georgia Southern University. The Likert scale survey was open from December 2022 to January 2023 and was distributed via the Undergraduate Student Nursing FOLIO page. Qualtrics was used to analyze the data and synthesize evidence to support the following hypotheses. Participants who were vaccinated will have experienced minimal side effects such as pain/swelling at the injection site, headache, muscle pain, chills, fever, and malaise. While participants may experience side effects, no participants will report adverse effects including guillain-barre syndrome or inflammation of the myocardium or pericardium. Nursing students who participate in the study will be more likely to receive the Covid-19 vaccine if they express concern about the spread of Covid-19, experienced loss of a family member/friend to Covid-19, or were required by a job, school, or extracurricular activity. In contrast, students will be unlikely to receive a Covid-19 vaccine if they perceive the vaccine to be unsafe.

Purpose and Significance

Through the data collected, information regarding nursing student's perceptions concerning inoculation post-Covid-19 injection will be determined. The study aimed to determine why a student chose to be vaccinated while some students decided to remain

unvaccinated. Factors assessed include what symptoms occured after innoculation and what influenced them to be vaccinated or remain unvaccinated. The study also asked students which vaccine they received along with the perceived safety of the Pfizer, Moderna, and Johnson and Johnson vaccines. The research will provide insight into nursing student's perceived safety of the Covid-19 vaccines and will allow greater understanding as to student preferences among Pfizer, Moderna, and Johnson and Johnson vaccinations. The study enables both nurses and nursing students to better understand perspectives of the vaccines and will foster more informed discussions with patients asking about the benefits and perceived dangers associated with inoculation

Methods

Research Design

A quantitative, likert scale survey was designed to assess student's perceptions of inoculation post-Covid-19 infection (see Appendix A). Eleven questions were carefully designed to explore a variety of factors. Students were recruited voluntarily and all responses were confidential.

Instrument Description

Students from both the Statesboro and Armstong campuses were able to complete the eleven question survey. Students were required to be over the age of 18 and be enrolled in good standing in the Georgia Southern University Nursing program. There was no penalty for non participation or withdrawal from the survey. The survey took approximately ten minutes to complete, and questions were asked in a multiple choice or select all that apply format. The survey was distributed via the Undergraduate Nursing FOLIO page by Dr. Melissa Garno's

permission. Confidentiality was maintained per the Qualtrics privacy policy. Maintaining confidentiality throughout the research process was imperative as participants have the right for health history and vaccine status to be confidential according to HIPAA.

After the first question which asked if the participant consented to be part of the research was answered, students were asked two questions assessing whether the student had been tested for Covid-19 and the results of the test. The next question was designed to assess a student's vaccination status and which vaccine was taken. The following series of questions determines side effects and adverse events occurred post first injection and second injection. Two questions were then asked to determine what influenced students to get the vaccine or remain unvaccinated. The last three questions included in the survey inquired about the perceived safety of the PfizerNBiotech, Moderna, and Johnson and Johnson inoculations.

After gathering the data, Qualtrics was used to analyze data. Bar graphs and statistical data generated by Qualtrics will provide both visual and referenced data throught the study.

Ethical Considerations

The study was approved by the Institutional Review Board (IRB) under tracking number H23124 at Georgia Southern University. Before completing the survey, students were able to agree to an informed consent and were able to leave the study at any time. In addition to designing the survey to be anonymous, the study was completely anonymous. While the data will be analyzed, shared at the Spring 2023 Honor's Symposium, and a copy of the research paper will be available through the Georgia Southern University Honors Program archive, only trends in the data will be available. After the anonymous data was gathered and reviewed by myself and Dr. Wilma Matti, the raw data collected will be erased. To minimize discomfort from taking the

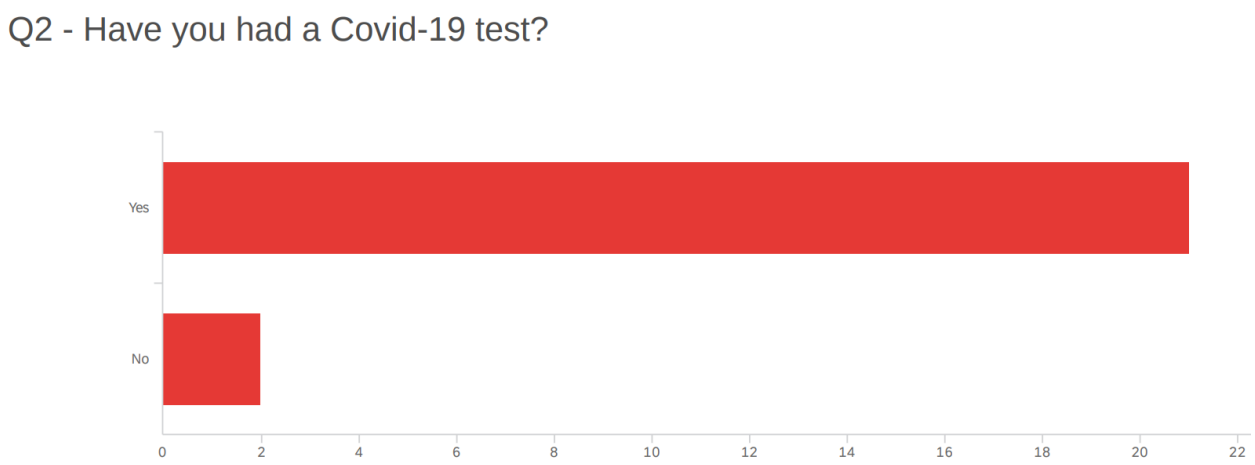
survey, students were encouraged to not participate, withdraw from the survey, and/or seek counseling services through Georgia Southern University if they were uncomfortable answering questions about vaccination status, side effects and adverse events following inoculation, or the perceived safety of the PfizerBioNTech, Moderna, or Johnson and Johnson vaccine.

Data Analysis and Results

While twenty six students began the survey, twenty three students consented and continued the survey. The sample size and data analyzed reflects the twenty three students who completed the survey in its entirety. All students were over the age of eighteen and were students in the Georgia Southern University School of Nursing on either the Statesboro or Armstrong campus.

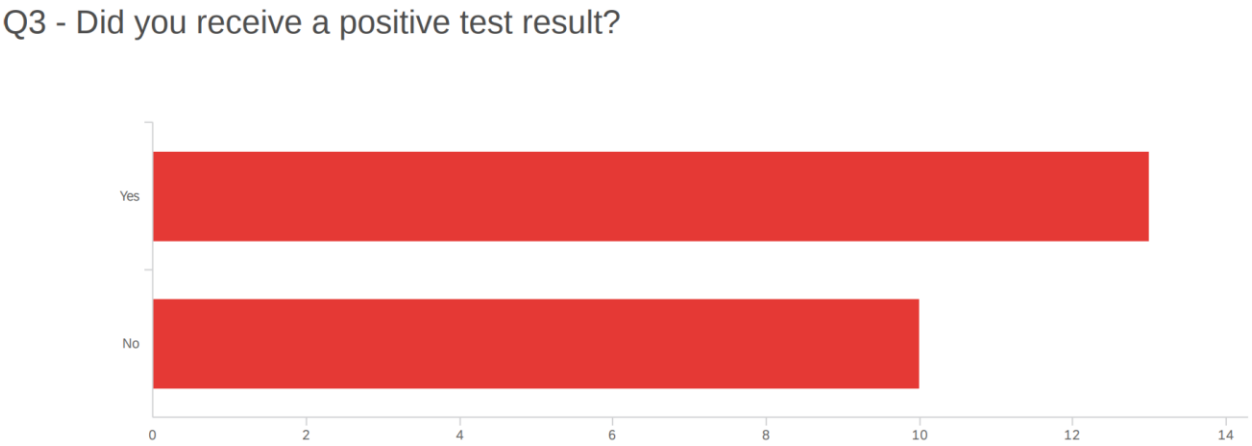
The data revealed that 21 (91.3%) of participants received a Covid-19 test while 2 (8.7%) had never taken a Covid-19 test (see Table 1). The vast majority of students who elected to participate in the survey have considered that infection from Covid-19 could have occurred.

Table 1



Out of the 23 participants, 13 (56.52%) received a positive test result while 10 (43.48%) of students received a negative Covid-19 test result (see table 2). While the percentage of students who contracted Covid-19 is similar, 3 (13.04%) more students tested positive than those who tested negative.

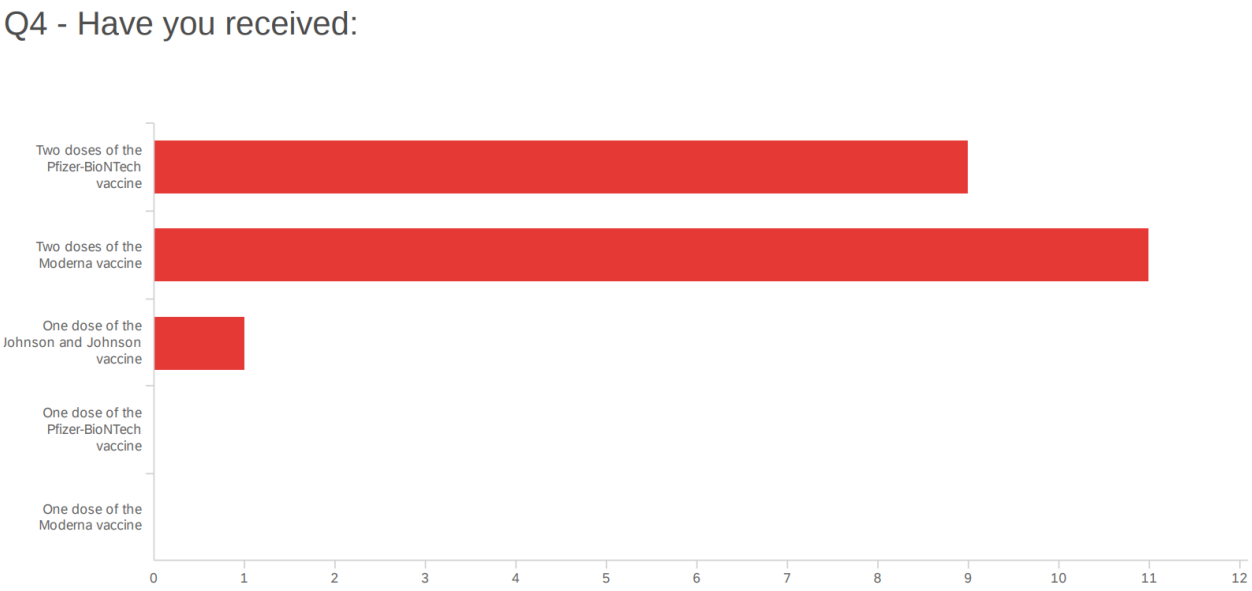
Table 2



Out of the vaccinated participants 21 (91.13%), all participants were fully vaccinated. No students who were vaccinated reported receiving only one dose of the Pfizer-BioNTech or Moderna vaccine. Receiving two doses of the Pfizer-BioNTech vaccine was reported by 9 (42.86%) of participants. The majority of students 11 (52.28%) responded that they received two doses of the Moderna vaccine. Only 1 (4.76%) student received the Johnson and Johnson

vaccine. The data analysis reveals that the all students who were vaccinated by the Pfizer-BioNTech or Moderna vaccine decided to complete the series of vaccinations. The one student who received the Johnson and Johnson vaccine also reached full vaccination status as only one inoculation is required.

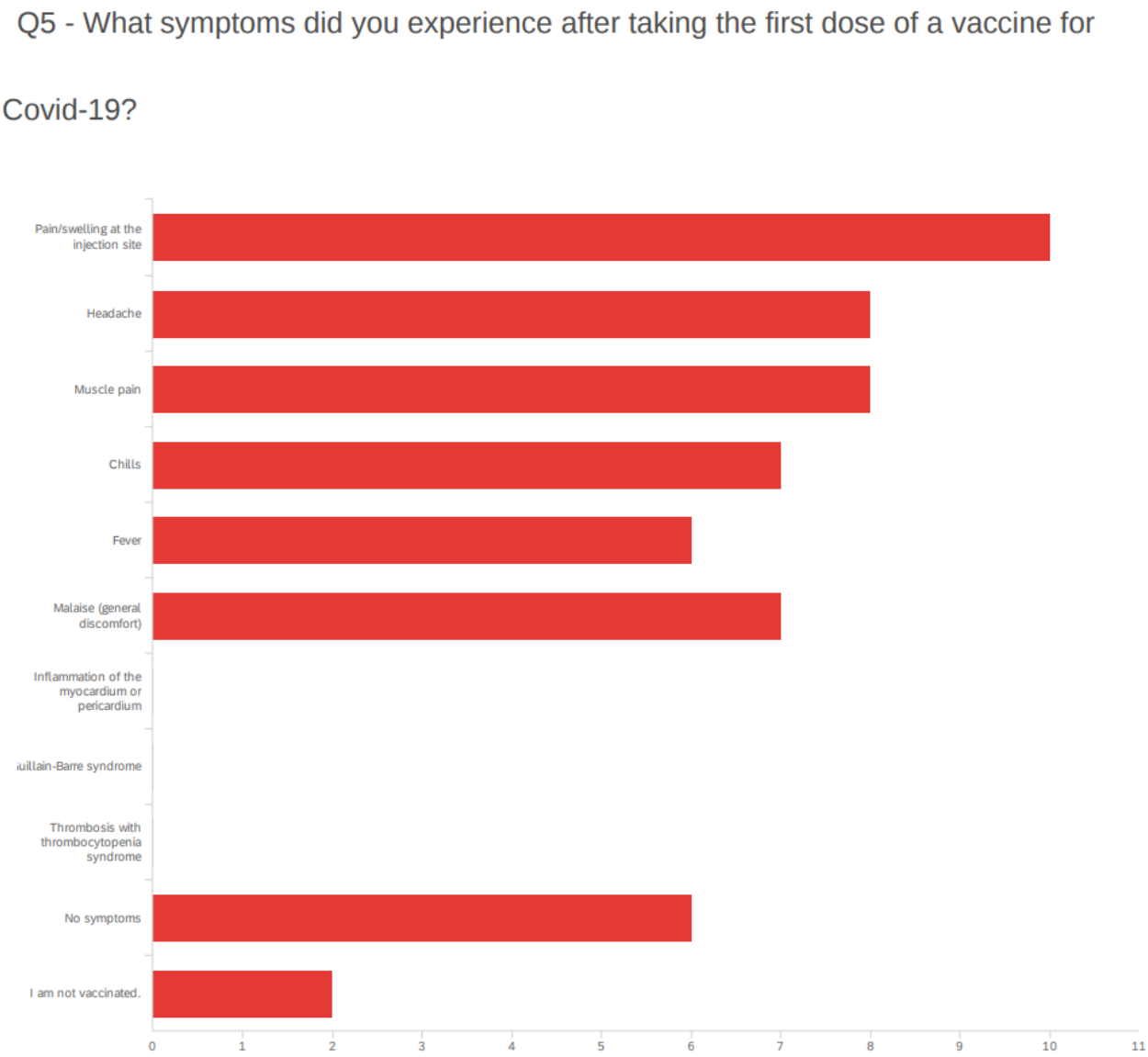
Table 3



After assessing the vaccination status of participants, two questions were asked to determine what side effects and adverse effects were experienced by subjects. The next two questions were asked by a select all that apply format which allowed participants to select multiple responses. The options that participants were able to select included the following- pain/swelling at the injection site, headache, muscle pain, chills, fever, malaise (general discomfort), inflammation of the myocardium or pericardium, Gullain-Barre syndrome, Thrombosis with thrombocytopenia syndrome, no symptoms, and I am not vaccinated. The following data analysis shows the side effects and adverse effects that were reported by students following the first dose of the Pfizer-BioNTech or Moderna or the sole dose of the Johnson and Johnson vaccine. Ten (18.52%) of participants reported injection/swelling at the injection site. A

headache was reported by 8 (14.81%) of the subjects. Eight (14.81%) people reported muscle reportpain. Chills were experienced by 7 (12.96%) of students who were included in the study. Six (11.11%) of participants experienced a fever following Covid-19 injection. Malaise (general discomfort) was experienced by 7 (12.96%) of subjects. Out of the twenty three participants, no one experienced inflammation of the myocardium or pericardium, Guillain-Barre syndrome, or thrombosis with thrombocytopenia syndrome. Six (11.11%) participants reported no symptoms following Covid-19 inoculation. While the students who participated in the survey experienced mild symptoms, no adverse events were recorded.

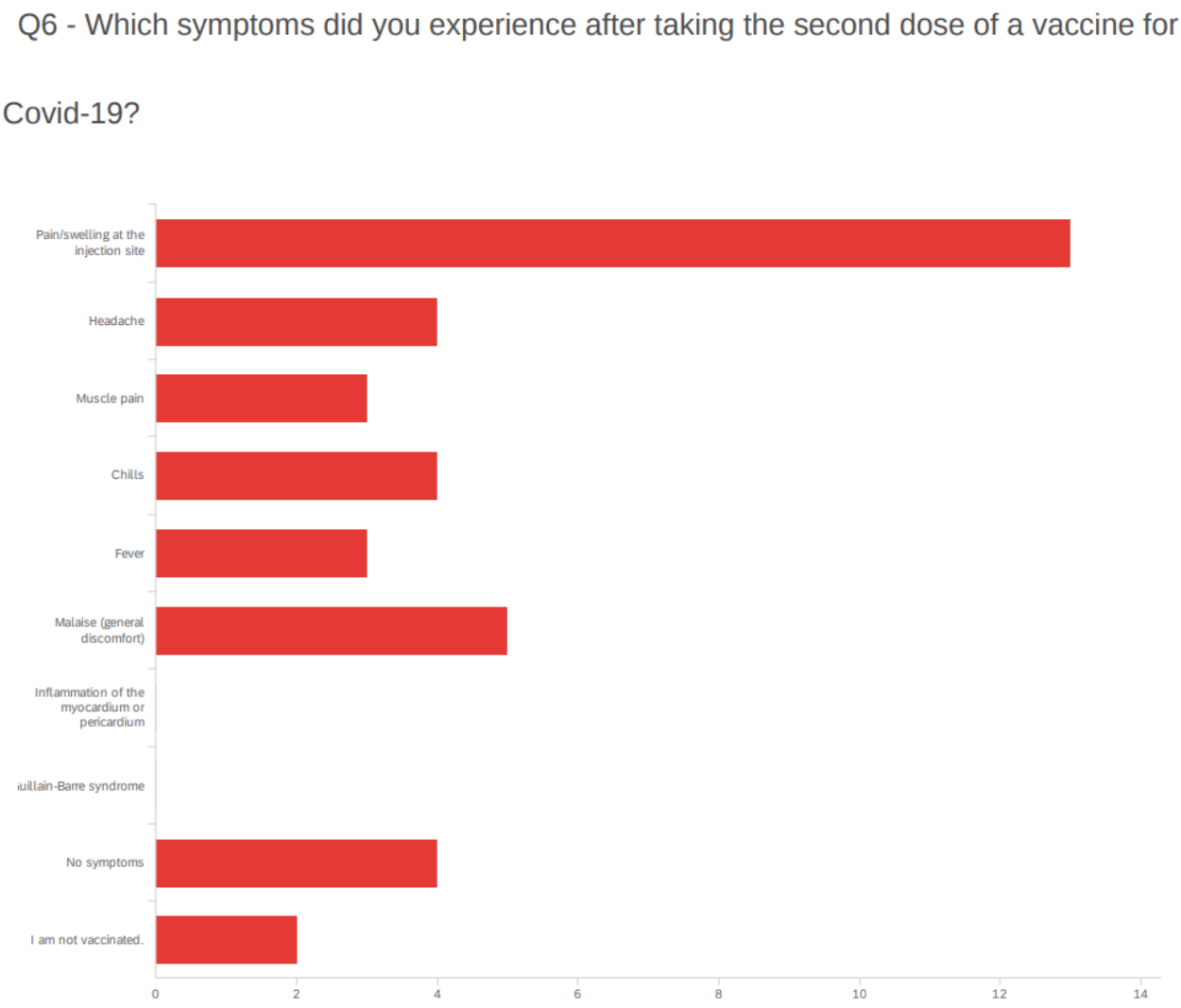
Table 4



The following data analysis shows the side effects and adverse effects that were reported by students following the second dose of the Pfizer-BioNTech or Moderna inoculation. The options that participants were able to select included the following- pain/swelling at the injection site, headache, muscle pain, chills, fever, malaise (general discomfort), inflammation of the myocardium or pericardium, Guillain-Barre syndrome, Thrombosis with thrombocytopenia syndrome, no symptoms, and I am not vaccinated. Thirteen (34.21%) of participants reported injection/swelling at the injection site following the second dose of a Covid-19 injection. Four

(10.52%) people reported a headache. Muscle pain was reported by 3 (7.89%) of subjects. Chills were experienced by 4 (10.53%) of students who responded in the survey. Three (7.89%) subjects experienced fever. Five (13.16%) of participants experienced malaise (general discomfort). No participants experienced inflammation of the myocardium or pericardium or Guillain-Barre syndrome. Four (10.53%) subjects experienced no symptoms following the second dose of a Covid-19 vaccination. The results gathered shows that 4 (10.53%) participants after the second injection compared to 6 (11.11%) of participants after the first injection experienced zero side effects. Participants appear to have experienced less side effects following the second dose of the Pfizer-BioNTech or Moderna vaccine in the sample size.

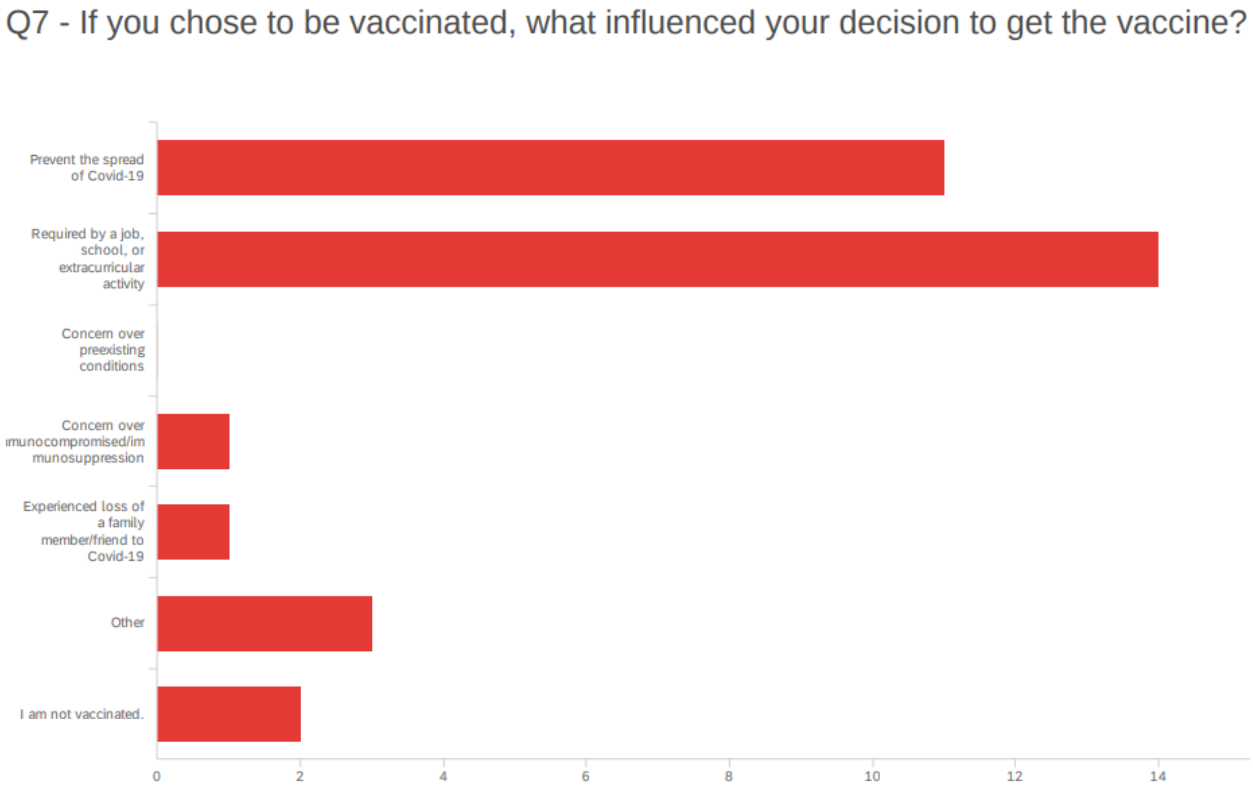
Table 5



The next question was designed to assess what influenced the subjects who were vaccinated to receive the vaccine. The questions were asked by a select all that apply format which allowed participants to select multiple responses. The options that participants were able to choose from include the following- prevent the spread of Covid-19, required by a job, school, or extracurricular activity, concern over preexisting conditions, concern over immunocompromised/immunosuppression, experienced loss of a family member/friend to Covid-19, other, and I am not vaccinated. Eleven participants (34.38%) chose to be vaccinated to

prevent the spread of Covid-19. Required by a job, school, and extracurricular activity was reported by 14 (43.75%) people. One person (3.13%) reported receiving a Covid-19 vaccine due to concern over immunocompromised/immunosuppression. One person (3.13%) reported that they decided to be vaccinated due to an experienced loss of a family member/friend to Covid-19. Three (9.38%) of participants selected the option other. The two most selected options were "prevent the spread of Covid-19" and "required by a job, school, or extracurricular activity." The majority of participants were concerned about the spread of Covid-19 and/or required to be vaccinated by a job, school, or extracurricular activity.

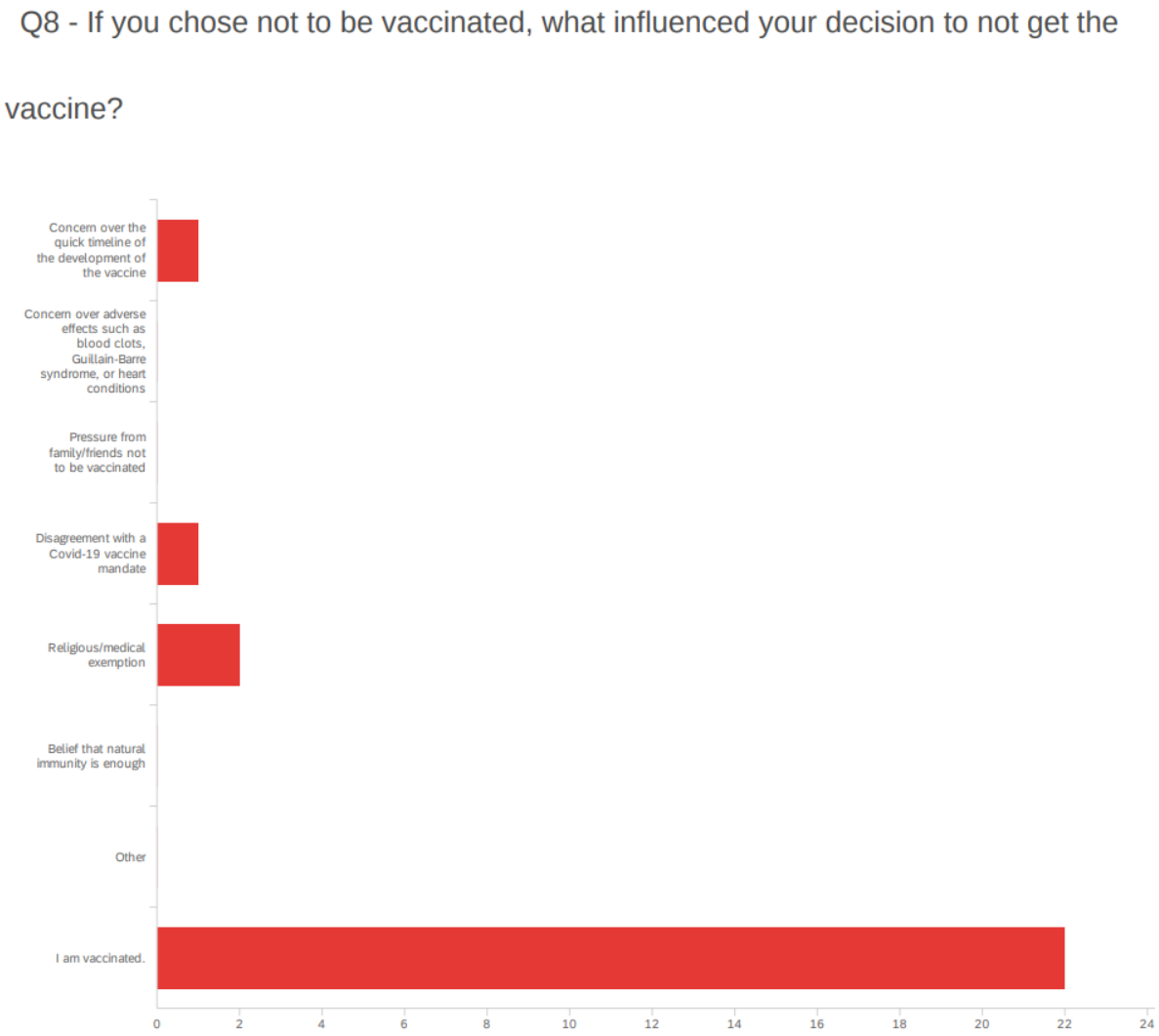
Table 6



The following question was designed to assess what influenced the subjects who were not vaccinated to recieve the vaccine. The question was asked by a select all that apply format which allowed participants to select multiple responses. The options were the following- concern over

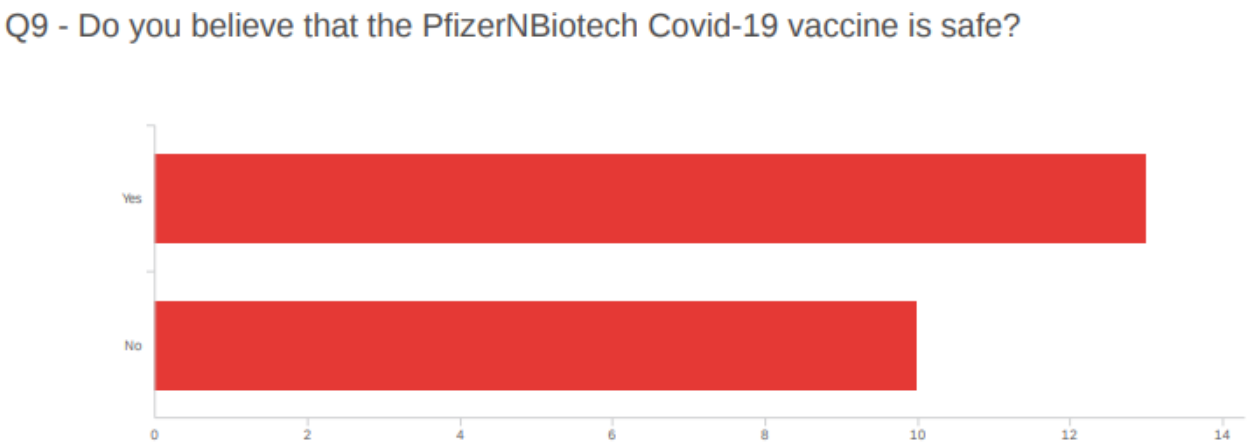
the quick timeline, of the development of the vaccine, concern over adverse effects such as blood clots, Guillain-Barre syndrome, or heart condition, pressure from family and/or friends not to be vaccinated, disagreement with a Covid-19 vaccine mandate, religious/medical exemption, belief that natural immunity is enough, other, and I am vaccinated. Of the twenty three total participants, 84.62% reported that they were vaccinated. The 2 (7.69%) of the participants were unvaccinated and reported a religious/medical exemption. One (3.85% of the total sample size or 50% of unvaccinated participants) reported concern over the quick timeline of the development of the vaccine. One participant (3.85% of the total sample size or 50% of unvaccinated participants) reported disagreement with a Covid-19 vaccine mandate.

Table 7



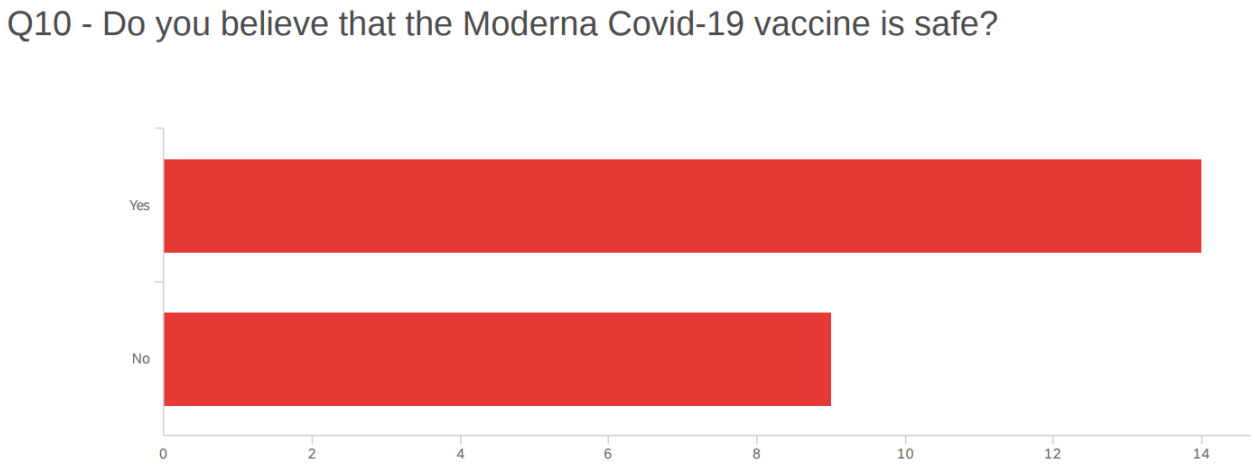
Of the twenty three participants, 13 (56.52%) reported that the PfizerNBiotech vaccine was safe while 10 (43.48%) viewed the PfizerBioNTech vaccine as unsafe. While the number of participants who viewed the vaccine as safe versus unsafe were similar, 3 (13.04%) more participants viewed the PfizerBioNTech vaccine as safe than unsafe.

Table 8



Of the twenty three participants, 14 (60.87%) subjects viewed the Moderna vaccine as safe while 9 (39.13%) subjects viewed the Moderna vaccine as unsafe. Among the PfizerBioNTech, Moderna, and Johnson and Johnson vaccinations, Moderna was perceived to be the most safe as five (21.74%) more students reported that Moderna was save compared to unsafe.

Table 9

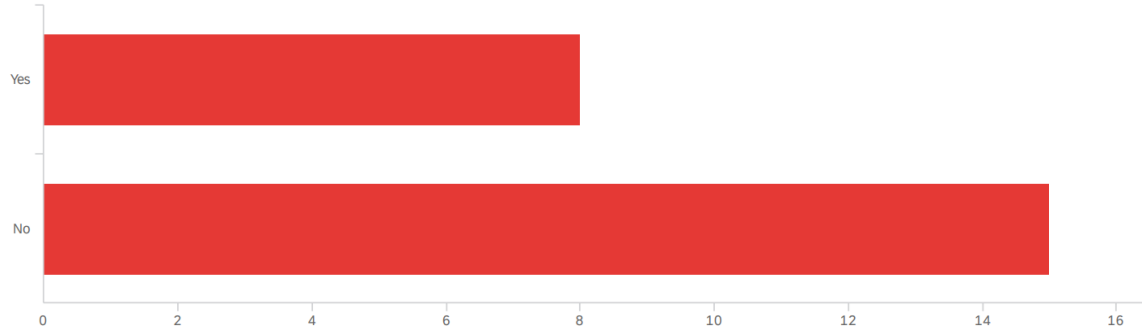


Among the PfizerBioNTech, Moderna, and Johnson and Johnson vaccinations, the Johnson and Johnson vaccine was perceived to be the most unsafe. Only 8 (34.78) people viewed the Johnson

and Johnson vaccine as safe while 15 (65.22%), the majority, viewed the Johnson and Johnson vaccine as unsafe.

Table 10

Q11 - Do you believe that the Johnson and Johnson vaccine is safe?



Discussion and Implications

Upon analyzing the data, several trends were discovered. The majority of students surveyed have taken a Covid-19 test (91.30%) and have received positive test results (56.52%). Covid-19 has affected the majority of students in some way. In addition to the majority being affected by Covid-19, the majority of students (21) also chose to be vaccinated; however, a direct correlation between being affected by Covid-19 and receiving a Covid-19 inoculation cannot be made. All students who chose to be vaccinated completed the series. Out of the 21 students who reported being vaccinated, the vast majority received the PfizerBioNTech or Moderna vaccination. Nine (42.86%) participants took two doses of the PfizerBioNTech and eleven (52.38%) people received two doses of the Moderna vaccine. One participant (4.76%) received a single dose of the Johnson and Johnson vaccine which is all that is required to reach full vaccination status. The trends in the data revealed that the vast majority of students were affected by Covid-19 and were fully vaccinated.

Of the participants who chose to be vaccinated, the majority did experience mild side effects. Pain/swelling at the injection site, headache, muscle pain, chills, fever, and malaise (general discomfort) were all reported for both doses of the vaccine. After receiving the first dose of the PfizerBioNTech or Moderna or the sole dose of the Johnson and Johnson vaccine, the three most common side effects were pain/swelling at the site (10), headache (8), and muscle pain (8). After receiving the second dose of the PfizerBioNTech or Moderna vaccine, pain/swelling at the injection site, headache, muscle pain, chills, fever, and malaise (general discomfort) were all reported, like after receiving the first dose. The three most common side effects were pain/swelling at the injection site (13), headache (4), and muscle pain (3). The trends in the data seem to show that participants had less side effects following the second dose. No instances of inflammation of the myocardium or pericardium, Guillain-Barre syndrome, or thrombosis with thrombocytopenia syndrome were reported. While the majority of students experienced mild symptoms, no adverse effects were reported in the study.

The data collected revealed trends as to why students chose to be vaccinated or decided to remain unvaccinated. The majority of students chose to be vaccinated to prevent the spread of Covid-19 (11) and/or were required to be vaccinated by a job, school, or extracurricular activity (14). The data shows that at least three students chose to be vaccinated due to a mandate rather than a desire to prevent the spread of Covid-19. The options for concern over the immunocompromised and experienced loss of a family member/friend were also selected by one participant each. Among all the possible options, the majority of students were required to be vaccinated.

Two students in the survey decided to remain unvaccinated. Both students who were unvaccinated reported having a religious/medical exemption. One student reported concern over

the quick timeline of the development of the vaccine while one student reported disagreement with a Covid-19 vaccine mandate.

The data also revealed trends in the perceived safety of the PfizerNBiotech, Moderna, and Johnson and Johnson vaccine. Moderna was perceived to be the safest of the three vaccines with 14 (60.87%) students reporting that they perceived the vaccine to be safe. Johnson and Johnson was perceived to be the most unsafe. Fifteen (65.22%) participants reported Johnson and Johnson as unsafe. Trends in the data seem to predict that students would be more likely to receive the Moderna vaccine and least likely to receive the Johnson and Johnson vaccine.

Strengths and Limitations

The study contains several strengths and limitations. One of the strengths is that the survey was completely anonymous. Students were able to share the reasoning for receiving the vaccine, deciding not to be vaccinated, and understanding of the safety of the vaccinations without fear of others opinions. The study was also qualitative which provided true statistical data which could be analyzed. The qualitative and anonymous nature of the survey were strengths to the research gathered. The greatest limitations of the research was the small sample size. With twenty three participants, strong trends in the data could not be determined.

Recommendations for Future Study

For future research, data should be gathered from a larger population size which would strengthen trends in the data. Future studies should be conducted at other universities, in addition to Georgia Southern University Statesboro and Armstrong campuses, to continue to assess

nursing students' perceptions of inoculation post-Covid-19 infection. Further investigation is needed to determine if students would have been vaccinated if there was no vaccine mandate.

Conclusion

The majority of students who participated in the research study chose to be vaccinated with the Moderna vaccine and experienced mild side effects. While no adverse reactions were reported, two students decided to remain unvaccinated due to a perceived fear of the quick development of the Covid-19 vaccines and a disagreement with vaccine mandates. The trends in the data revealed that the majority of students who were vaccinated chose to receive an inoculation due to a vaccine mandate. As knowledge and data are discovered, understanding of nursing students' perceptions regarding inoculation post-Covid-19 infection will continue to develop.

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Appendix A

Qualtrics Survey Questions

1. Have you had a Covid-19 test? Yes or no
2. Did you receive a positive result? Yes or no
3. Have you received:
    A. Two doses of the Pfizer-BioNTech vaccine
    B. Two doses of the Moderna vaccine
    C. One dose of the Johnson and Johnson vaccine
4. What symptoms did you experience after taking the first dose of a vaccine for Covid-19?
    A. Pain/swelling at the injection site
    B. Headache
    C. Muscle pain
    D. Chills
    E. Fever
    F. General discomfort (malaise)
    G. Inflammation of the myocarditis or pericarditis
    H. Guillain-Barre syndrome
    I. Thrombosis with thrombocytopenia syndrome
    J. No symptoms
    K. I am not vaccinated.
5. What symptoms did you experience after taking the second dose of a vaccine for Covid-19?
    A. Pain /swelling at the injection site
    B. Headache
    C. Muscle Pain
    D. Chills
    E. Fever
    F. General discomfort (malaise)
    G. Inflammation of the myocarditis or pericarditis
    H. Guillain-Barre syndrome
    I. Thrombosis with thrombocytopenia syndrome
    J. No symptoms
    K. I am not vaccinated.
6. If you chose to be vaccinated, what influenced your decision to get the vaccine? SATA
    A. Prevent the spread of Covid-19
    B. Required by a job, school, or extracurricular activity
    C. Concern over preexisting conditions
    D. Concern over immunocompromised/immunosuppression
    E. Experienced loss of a family member/friend to Covid-19

F. Other

7. If you chose not to be vaccinated, what influenced your decision to not get the vaccine? SATA
    A. Concern over the quick timeline of the development of the vaccine
    B. Concern over adverse effects such as blood clots, Guillain-Barre syndrome, or heart conditions
    C. Pressure from family/friends not to be vaccinated
    D. Disagreement with a Covid-19 vaccine mandate
    E. Religious/medical exemption
    F. Belief that natural immunity is enough
    G. Other
8. Is it your perception that the PfizerNBiotech Covid-19 vaccine is safe? Yes or no
9. Is it your perception that the Moderna Covid-19 vaccine is safe? Yes or no
10. Is it your perception that the Johnson and Johsnon vaccine is safe? Yes or no