Impact of Education on the Perception and Knowledge of COVID-19 Vaccine: A Study of College-aged students

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INTRODUCTION

Although COVID-19 vaccines were mandated for students to return on-campus, there remains a lack of vaccine education that is contributing to vaccine hesitancy amongst college-aged students (Mant et al., 2021).

Addressing vaccine hesitancy through an educational intervention adapted from the CDC can help improve vaccine perception, knowledge, and acceptance amongst college-aged students (Barello et al., 2021).

METHODS

Wagner College IRB approval was granted (#FA21-12).

An a priori power analysis revealed a minimum sample size of 47 to achieve significance at a power of 90% and 𝛼 = 0.05 using G*Power 3.1.9.7 (Germany).

An electronic survey was created and administered before and after an educational intervention adapted from the CDC (CDC, 2022).

The survey consisted of 9 demographic items, 8 vaccination status items, and Likert-scale items adapted from the 14-point Oxford and 7-point Vaccine Confidence and Complacency scales (Freeman et al., 2021).

Sample size was N = 64.

Data were analyzed with IBM SPSS Version 27 (Armonk, NY) with alpha level set at 0.05.

RESULTS

The purpose of this pretest-posttest study design is to determine if an educational intervention about COVID-19 vaccine safety and efficacy changes short-term perceptions and knowledge among college-aged students.

• Creating COVID-19 vaccine education programs to distribute among college-aged students increases vaccine acceptance.

• After our intervention adapted from the CDC was presented, college-aged students increased short-term knowledge (p = 0.000) and decreased negative attitude (p = 0.001) and hesitancy (p = 0.000) toward the COVID-19 vaccine.

• Future research on a more diverse sample, and to assess long-term knowledge recall can be beneficial.

CONCLUSIONS

• Wagner College IRB approval was granted (#FA21-12).

• An a priori power analysis revealed a minimum sample size of 47 to achieve significance at a power of 90% and 𝛼 = 0.05 using G*Power 3.1.9.7 (Germany).

• An electronic survey was created and administered before and after an educational intervention adapted from the CDC (CDC, 2022).

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• Sample size was N = 64.

• Data were analyzed with IBM SPSS Version 27 (Armonk, NY) with alpha level set at 0.05.

Inclusion Criteria:

• Participants at least 18 years old and enrolled in at least one college class.

• Responded “yes” to the informed consent and completed all surveys.

Exclusion Criteria:

• Participants less than 18 years old and not enrolled in at least one college class.

• Responded “no” to the informed consent and did not complete all required surveys.

These data highlight the importance of focused education regarding COVID-19 and the COVID-19 vaccine in the young adult population and how it can improve both vaccine knowledge and perception.
Sample

Number of participants ($N = 75$)

Excluded based on exclusion criteria ($n = 11$)
- Participants did not complete all surveys and/or multiple-choice questions.

Total number of participants ($N = 64$)
Vaccination Status

COVID-19 and COVID-19 Vaccine Education ($N = 64$)

Q15. Have you been educated about COVID-19 in the past?

- Yes: 65.63%
- No: 31.25%
- Unsure: 3.13%

Q16. Have you been educated about the COVID-19 Vaccine in the past?

- Yes: 40.63%
- No: 57.81%
- Unsure: 1.56%

Figure 1.

Figure 2.
Knowledge

Figure 3.

COVID-19 Knowledge Before and After Intervention

* $p = 0.000$

$N = 64$

Knowledge Assessment (error bars represent 95% CI)
Negative Attitude

Figure 4.

COVID-19 Vaccine Negative Attitude Before and After Intervention

$N = 64$

![Bar chart showing mean attitude scores before and after intervention. Pre-intervention mean attitude score is 32.97, post-intervention mean attitude score is 26.31, with a significant decrease marked by an asterisk (*) indicating $p = 0.001$.](image-url)
Figure 5.

COVID-19 Vaccine Hesitancy Before and After Intervention

*N = 64*

Mean Hesitancy Score

Pre-intervention: 14.91
Post-intervention: 12.52

Hesitancy Assessments (error bars represent 95% CI)

* * p = 0.000
## Correlations

### Table 10. Spearman’s rho correlation on COVID-19 vaccine hesitancy (*N* = 64)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Spearman rho</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-post: Willingness to get vaccinated prior to the Wagner College vaccine mandate</td>
<td>0.769 *</td>
</tr>
<tr>
<td>Pre-post: Speed at which participants got COVID-19 vaccinated</td>
<td>0.877 *</td>
</tr>
<tr>
<td>Pre-post: Attitude toward receiving a COVID-19 vaccination</td>
<td>0.646 *</td>
</tr>
<tr>
<td>Pre-post: Prior acceptance of the COVID-19 vaccine</td>
<td>0.817 *</td>
</tr>
<tr>
<td>Pre-post: Encouraging family and friends to get vaccinated</td>
<td>0.650 *</td>
</tr>
<tr>
<td>Pre-post: Eagerness to get the COVID-19 vaccine after Emergency FDA approval</td>
<td>0.692 *</td>
</tr>
<tr>
<td>Pre-post: Importance of COVID-19 vaccination</td>
<td>0.502 *</td>
</tr>
</tbody>
</table>

* *p* = 0.00 (2-tailed).
## Instrument Reliability

**Table 11.** Perception about the COVID-19 Vaccine \((N = 64)\)

<table>
<thead>
<tr>
<th>Perception on COVID-19 vaccine</th>
<th>Items</th>
<th>Cronbach's alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 Point Oxford COVID-19 Vaccine Competency and Complacency Scale</td>
<td>14</td>
<td>.943</td>
</tr>
<tr>
<td>7 Point Oxford COVID-19 Vaccine Hesitancy Scale</td>
<td>7</td>
<td>.971</td>
</tr>
</tbody>
</table>
References


