



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



Rachel A. Chao ¹, Sandy N. Ibrahim ¹, Noelle A. Mele ¹, Shawn M. Questel ¹, Taylor J. Wasserman ¹, Tara Igneri, MS, PA-C ², and Anthony V. D'Antoni, MS, DC, PhD ²

¹ Student, Physician Assistant Program, Wagner College; ² Faculty Member, Physician Assistant Program, Wagner College, Staten Island, NY, 10301, USA

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).

PURPOSE

- 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.

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 $\alpha = 0.05$ 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.

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.

RESULTS

Figure 1. Prior COVID-19 Vaccination Knowledge

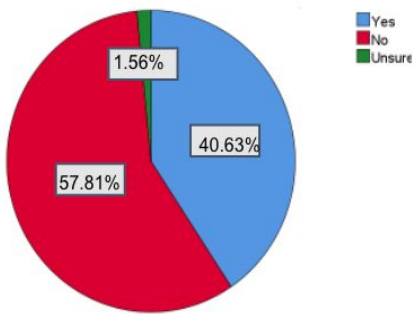


Figure 2. Mean Knowledge Score

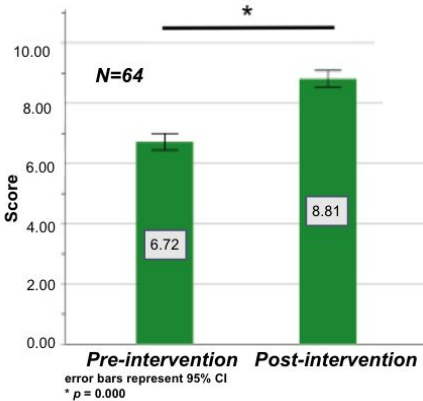


Figure 3. Mean Hesitancy Score

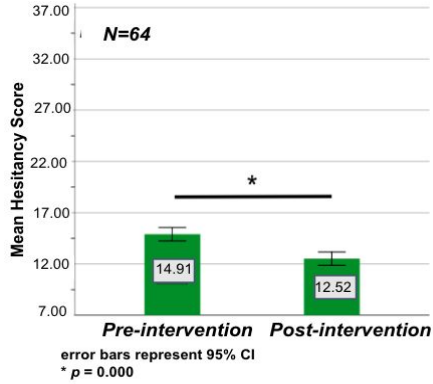
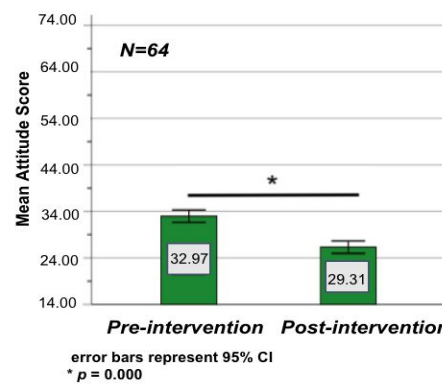


Figure 4. Mean Negative Attitude Score



CONCLUSIONS

- 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.

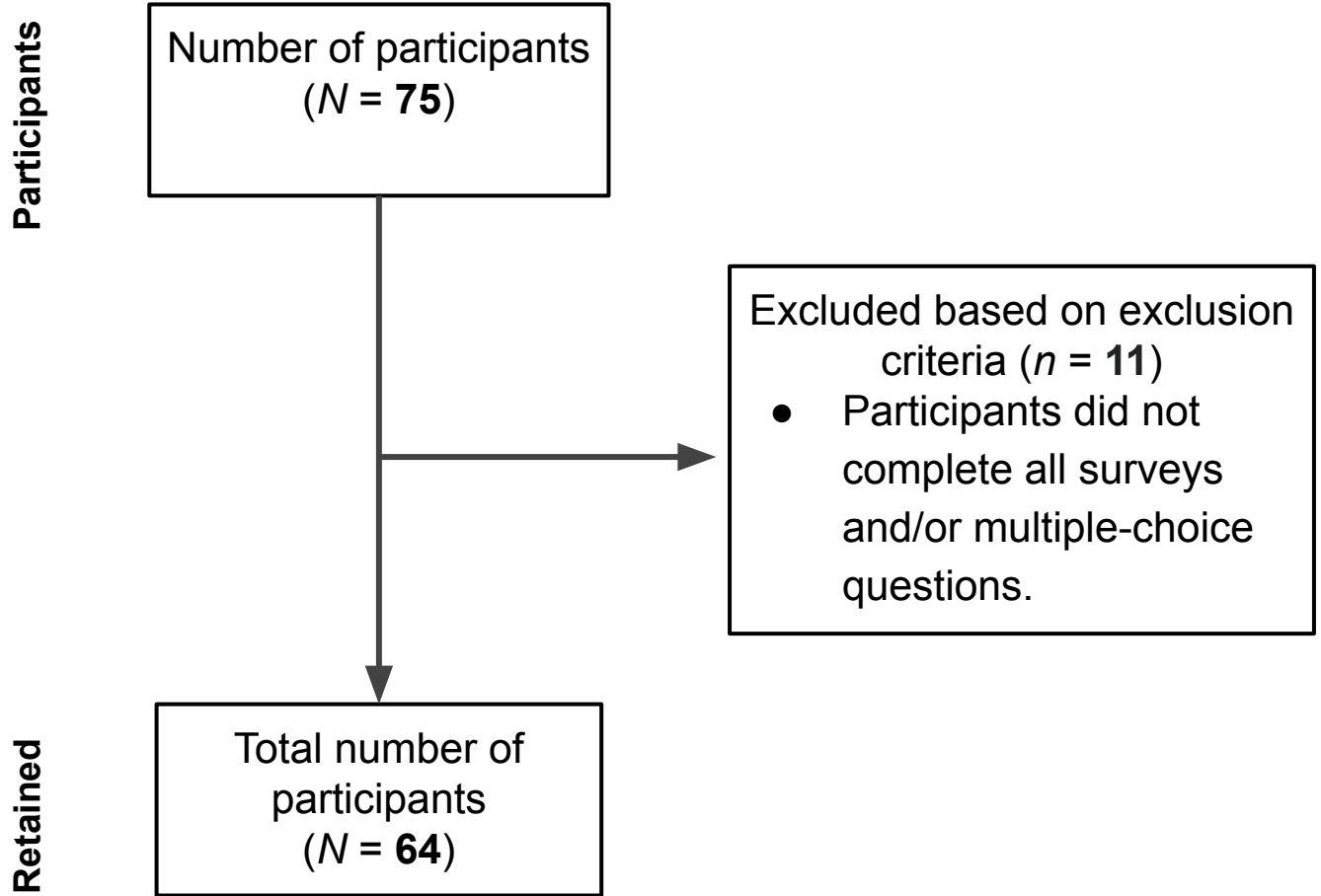
EDUCATIONAL RELEVANCE

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.

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Sample



Vaccination Status

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

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

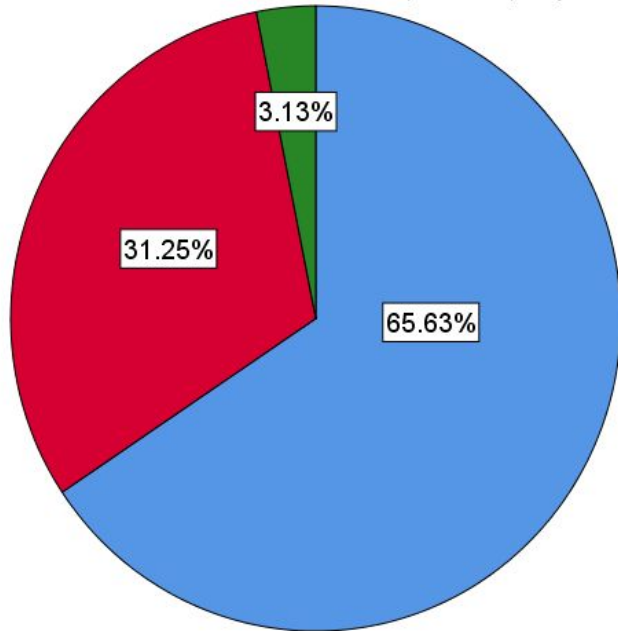
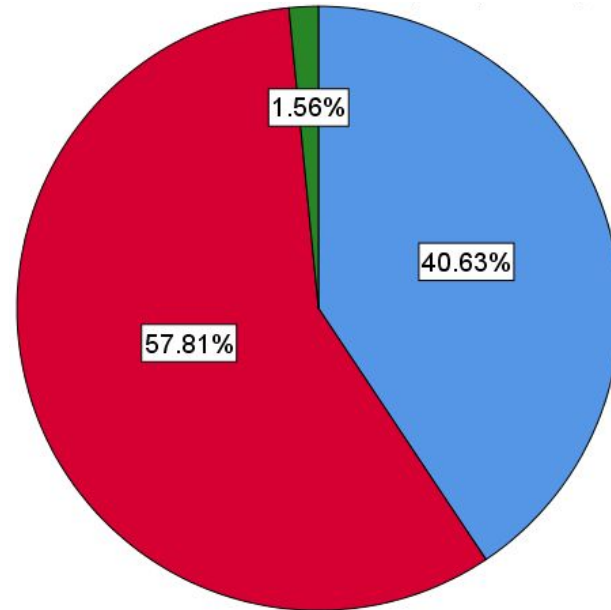


Figure 1.

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

Yes
No
Unsure

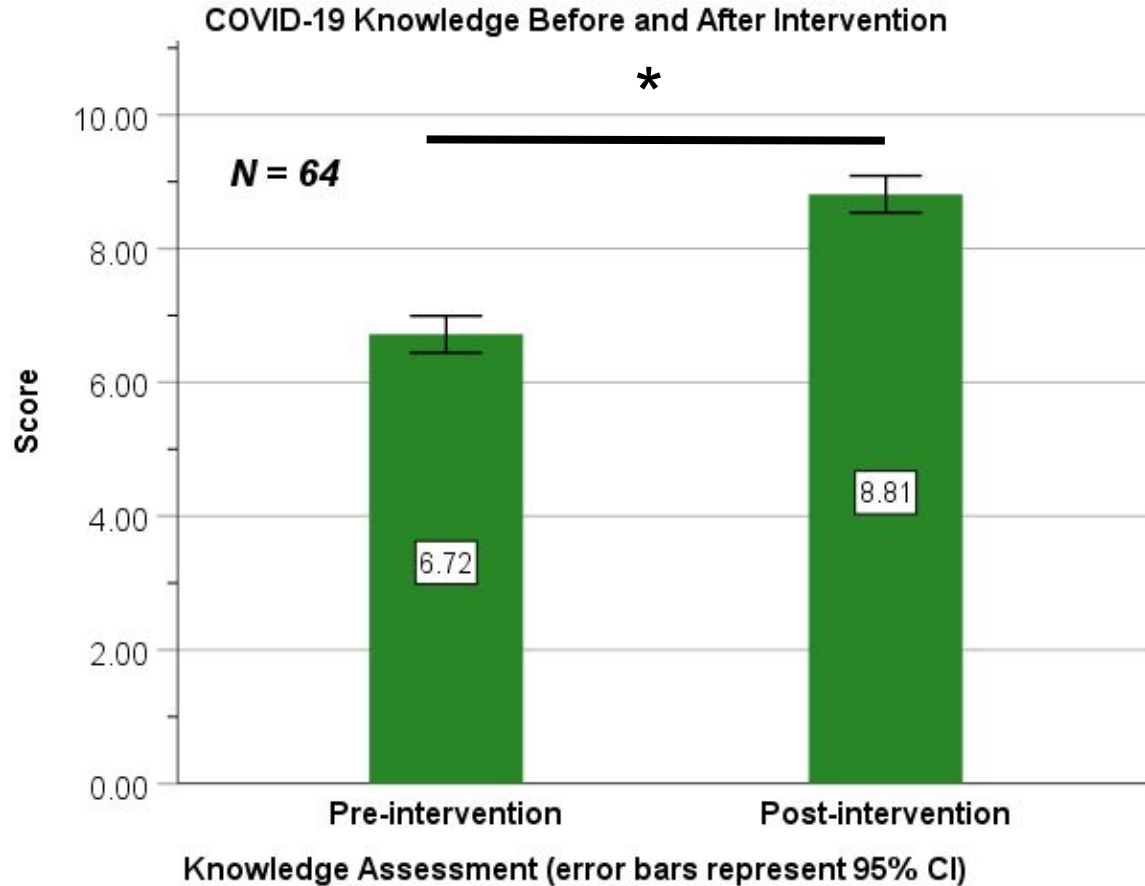


Yes
No
Unsure

Figure 2.

Knowledge

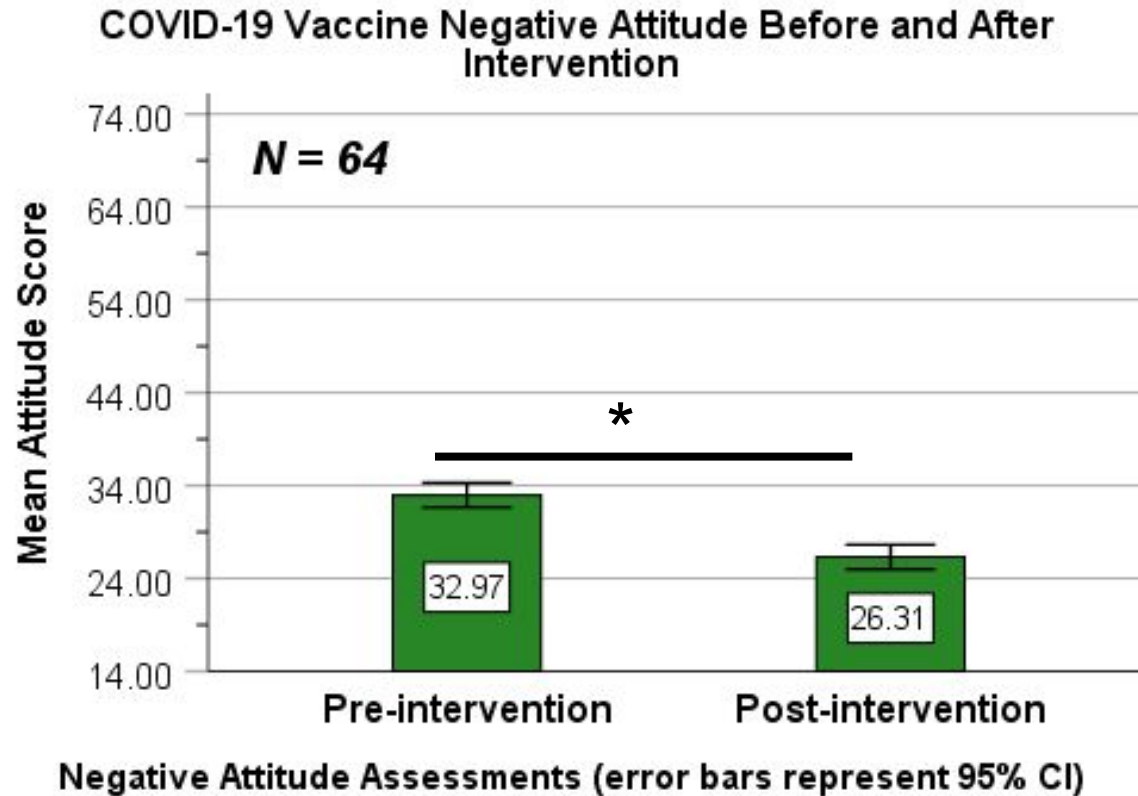
Figure 3.



* $p = 0.000$

Negative Attitude

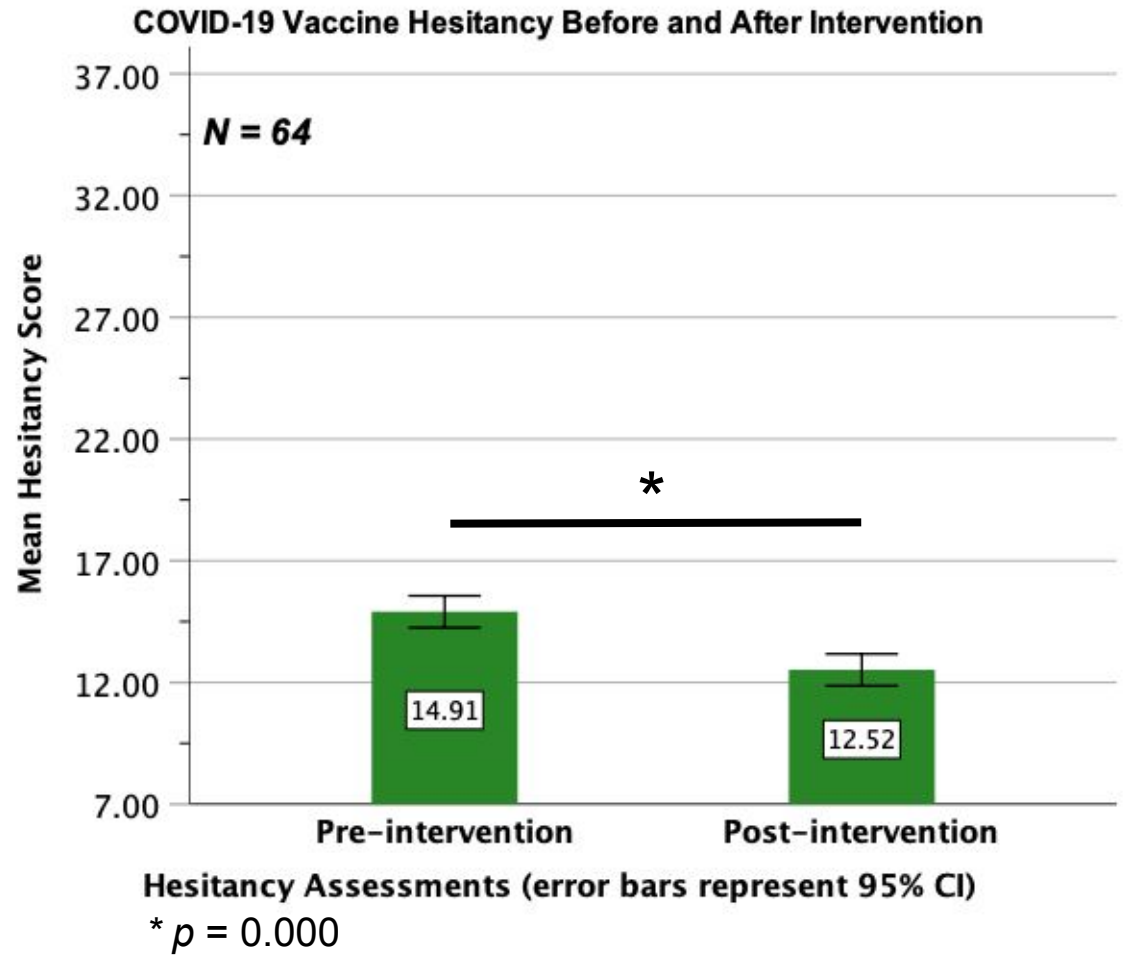
Figure 4.



* $p = 0.001$

Hesitancy

Figure 5.



Correlations

Table 10. Spearman's rho correlation on COVID-19 vaccine hesitancy ($N = 64$)

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

* $p = 0.00$ (2-tailed).

Instrument Reliability

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

Perception on COVID-19 vaccine	Items	Cronbach's alpha
14 Point Oxford COVID-19 Vaccine Competency and Complacency Scale	14	.943
7 Point Oxford COVID-19 Vaccine Hesitancy Scale	7	.971

References

- Barello, S., Nania, T., Dellafiore, F., Graffigna, G., Caruso, R. (2020). Vaccine hesitancy among university students in Italy during the COVID-19 pandemic. *European Journal of Epidemiology*, 35(8), 781–783.
- Biasio, L. R., Bonaccorsi, G., Lorini, C.; Pecorelli, S. (2020). Assessing COVID-19 vaccine literacy: A preliminary online survey. *Human Vaccines; Immunotherapeutics*, 17(5), 1304–1312.
- Daly, M., Jones, A., & Robinson, E. (2021). Public trust and willingness to vaccinate against COVID-19 in the US from October 14, 2020, to March 29, 2021. *JAMA*, 325(23), 2397. <https://doi.org/10.1001/jama.2021.8246>.
- Freeman, D., Loe, B. S., Yu, L.-M., Freeman, J., Chadwick, A., Vaccari, C., Shanyinde, M., Harris, V., Waite, F., Rosebrock, L., Petit, A., Vanderslott, S., Lewandowsky, S., Larkin, M., Innocenti, S., Pollard, A. J., McShane, H., & Lambe, S. (2021). Effects of different types of written vaccination information on COVID-19 vaccine hesitancy in the UK (Oceans-III): A single-blind, parallel-group, randomized controlled trial. *The Lancet Public Health*, 6(6), 416–427.
- Joshi, A., Kaur, M., Kaur, R., Grover, A., Nash, D., & El-Mohandes, A. (2021). Predictors of COVID-19 vaccine acceptance, intention, and hesitancy: A scoping review. *Frontiers in Public Health*, 9. <https://doi.org/10.3389/fpubh.2021.698111>.
- Khubchandani, J., Sharma, S., Price, J. H., Wiblishauser, M. J., Sharma, M., Webb, F. J. (2021). Covid-19 vaccination hesitancy in the United States: A rapid national assessment. *Journal of Community Health*, 46(2), 270–277.
- Kreps, S., Prasad, S., Brownstein, J. S., Hswen, Y., Garibaldi, B. T., Zhang, B., Kriner, D. L. (2020). Factors associated with US adults' likelihood of accepting COVID-19 vaccination. *JAMA Network Open*, 3(10), e2025594.

References Cont.

Li, P. C., Theis, S. R., Kelly, D., Ocampo, T., Berglund, A., Morgan, D., Markert, R., Fisher, E., & Burtson, K. (2021). Impact of an education intervention on COVID-19 vaccine hesitancy in a military base population. *Military Medicine*, *00*. <https://doi.org/10.1093/milmed/usab363>.

Machingaidze, S., Wiysonge, C.S. Understanding COVID-19 vaccine hesitancy. *Nat Med* 27, 1338–1339 (2021). <https://doi.org/10.1038/s41591-021-01459-7>.

Mant, M., Aslemand, A., Prine, A., & Jaagumägi Holland, A. (2021). University students' perspectives, planned uptake, and hesitancy regarding the COVID-19 vaccine: A multi-methods study. *PLOS ONE*, *16*(8), e0255447.

Sadaqat, W., Habib, S., Tauseef, A., Akhtar, S., Hayat, M., Shujaat, S. A., & Mahmood, A. (2021). Determination of COVID-19 vaccine hesitancy among university students. *Cureus*. <https://doi.org/10.7759/cureus.17283>.

Soares, P.; Rocha, J.V.; Moniz, M.; Gama, A.; Laires, P.A.; Pedro, A.R.; Dias, S.; Leite, A.; Nunes, C. Factors Associated with COVID-19 Vaccine Hesitancy. *Vaccines* 2021, *9*, 300. <https://doi.org/10.3390/vaccines9030300>.