



June 2022

Attitudes Toward COVID-19 Vaccination Among Occupational Therapy Professionals and Students in Early 2021

Stephen A. Cage

The University of Texas at Tyler, acage@uttyler.edu

Brandon J. Warner

Grand Canyon University, brandon.warner@gcu.edu

Diana M. Gallegos

The University of Texas at Tyler, dgallegos@uttyler.edu

Heidi M. Cage

Encompass Health, heidi.heuer@gmail.com

Diane P. Brown PhD, OTR

The University of Texas at Tyler, dbrown@uttyler.edu

Follow this and additional works at: <https://nsuworks.nova.edu/ijahsp>



Part of the [Occupational Therapy Commons](#)

Recommended Citation

Cage SA, Warner BJ, Gallegos DM, Cage HM, Brown DP. Attitudes Toward COVID-19 Vaccination Among Occupational Therapy Professionals and Students in Early 2021. *The Internet Journal of Allied Health Sciences and Practice*. 2022 Jun 29;20(3), Article 1.

This Manuscript is brought to you for free and open access by the College of Health Care Sciences at NSUWorks. It has been accepted for inclusion in *Internet Journal of Allied Health Sciences and Practice* by an authorized editor of NSUWorks. For more information, please contact nsuworks@nova.edu.

Attitudes Toward COVID-19 Vaccination Among Occupational Therapy Professionals and Students in Early 2021

Abstract

Purpose: After the widespread transmission of the novel coronavirus that causes COVID-19, the first COVID-19 vaccination received emergency use authorization in the United States in December of 2020. Current research has shown the authorized COVID-19 vaccines to be safe and effective at preventing severe illness. At the time of this study, there appears to be no published research on the attitudes and receipt of COVID-19 vaccinations among occupational therapy professionals and students. The purpose of this study is to describe the attitudes and receipt of COVID-19 vaccinations among occupational therapy professionals and students in early 2021. **Methods:** A total of 114 occupational therapy professionals and students (age = 41 ± 15 , years of certified experience = 13 ± 13) opened the survey link and completed the instrument. Participants were sent an electronic survey via email that collected demographic information and assessed attitudes and receipt of COVID-19 vaccination. Data was downloaded and analyzed using a commercially available statistics package. **Results:** The majority of occupational therapy professionals in this study agreed on some level that they were comfortable (Strongly Agree = 36.0%, Agree = 16.7%, Somewhat Agree = 10.5%). Most occupational therapy professionals and students stated they had or would receive a COVID-19 vaccination. The majority of participants reported personal, household, and community safety as the primary considerations for receiving a COVID-19 vaccination. In general, these factors were a larger factor for participants than public perception or personal liberties being infringed upon. **Conclusions:** The findings of this study suggest a majority of occupational therapy professionals and students are comfortable with the current level of approvals for available COVID-19 vaccinations, and at the time of the survey had or intending to be vaccinated. As occupational therapy professionals and students continue to work in day-to-day patient care, it is imperative to consider the best means of educating occupational therapy professionals and students on the potential benefits of COVID-19 vaccinations.

Author Bio(s)

S. Andrew Cage, EdD, LAT, ATC, is the Head Athletic Trainer and a Health & Kinesiology Instructor at the University of Texas at Tyler. He is also licensed and certified athletic trainer.

Brandon J. Warner, M.Ed., LAT, ATC, is the Athletic Training Program Director at Grand Canyon University. He is also a licensed and certified athletic trainer.

Diana M. Gallegos, MS, LAT, ATC, is an Associate Athletic Trainer at the University of Texas at Tyler and UT Health East Texas. She is also a certified and licensed athletic trainer.

Heidi M. Cage, MOT, OTR, is an Occupational Therapist at Encompass Health. She is also a registered occupational therapist.

Diane P. Brown, PhD, OTR, is the former Masters of Occupational Therapy Program Director at the University of Texas at Tyler. She is also a registered occupational therapist.



The Internet Journal of Allied Health Sciences and Practice

Dedicated to allied health professional practice and education

Vol. 20 No. 3 ISSN 1540-580X

Attitudes Toward COVID-19 Vaccination Among Occupational Therapy Professionals and Students in Early 2021

Stephen A. Cage¹
Brandon J. Warner²
Diana M. Gallegos¹
Heidi M. Cage³
Diane PI Brown¹

1. The University of Texas at Tyler
2. Grand Canyon University
3. Encompass Health

United States

ABSTRACT

Purpose: After the widespread transmission of the novel coronavirus that causes COVID-19, the first COVID-19 vaccination received emergency use authorization in the United States in December of 2020. Current research has shown the authorized COVID-19 vaccines to be safe and effective at preventing severe illness. At the time of this study, there appears to be no published research on the attitudes and receipt of COVID-19 vaccinations among occupational therapy professionals and students. The purpose of this study is to describe the attitudes and receipt of COVID-19 vaccinations among occupational therapy professionals and students in early 2021. **Methods:** A total of 114 occupational therapy professionals and students (age= 41 ± 15, years of certified experience = 13 ± 13) opened the survey link and completed the instrument. Participants were sent an electronic survey via email that collected demographic information and assessed attitudes and receipt of COVID-19 vaccination. Data was downloaded and analyzed using a commercially available statistics package. **Results:** The majority of occupational therapy professionals in this study agreed on some level that they were comfortable (Strongly Agree = 36.0%, Agree = 16.7%, Somewhat Agree = 10.5%). Most occupational therapy professionals and students stated they had or would receive a COVID-19 vaccination. The majority of participants reported personal, household, and community safety as the primary considerations for receiving a COVID-19 vaccination. In general, these factors were a larger factor for participants than public perception or personal liberties being infringed upon. **Conclusions:** The findings of this study suggest a majority of occupational therapy professionals and students are comfortable with the current level of approvals for available COVID-19 vaccinations, and at the time of the survey had or intending to be vaccinated. As occupational therapy professionals and students continue to work in day-to-day patient care, it is imperative to consider the best means of educating occupational therapy professionals and students on the potential benefits of COVID-19 vaccinations.

Keywords: SARS-CoV-2, Coronavirus, Vaccination, COVID-19

INTRODUCTION

Coronavirus disease 19 (COVID-19) is a respiratory disease caused by the virus identified as “severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).”¹ COVID-19 was first described by healthcare professionals in late 2019 in Wuhan, China.¹ The disease has proven to be highly infectious.¹ COVID-19 symptoms include fever, dry cough, sore throat, fatigue, loss of smell, loss of taste, muscle and joint pain, shortness of breath, nausea, vomiting, and diarrhea.¹ Patients have developed potentially fatal pneumonia, septic shock, metabolic acidosis, and coagulation dysfunction in severe cases of COVID-19.² During the first several months of the COVID-19 pandemic, healthcare efforts centered around testing, contact tracing, enhanced hygiene practices, and face coverings.³⁻⁶ Thus, the primary recommendations to mitigate the spread of COVID-19 had been social distancing, recognition through testing, contact tracing, enhanced hygiene precautions, and face coverings.³⁻⁶ In December 2020, the first vaccine for COVID-19 received emergency use authorization from the United States Food and Drug Administration (FDA).⁷ On August 23, 2021, the FDA fully approved the mRNA BNT162b2 (Pfizer) COVID-19 vaccine for individuals 16 years of age and older.⁸

As more research has been done on the mRNA BNT162b2 vaccine (Pfizer) and the mRNA-1273 (Moderna) vaccine, the vaccines have been found to be very effective at preventing both infection and severe COVID-19 illness.⁹⁻²⁰ In addition to being effective, these vaccines have been found to be safe as well. The safety of the vaccine is important, as the Public Readiness and Emergency Preparedness Act (PREP) grants the manufacturers total immunity from liability if something unintentionally goes wrong with the vaccines (CNBC, 2020). Several studies have reported that the adverse effects of these vaccines are often mild, and risk of adverse effects from these vaccines is lower than the risk of a serious event caused by COVID-19 infection.^{9,11,16,19,21} In fact, a study conducted by Barda et al. retrospectively assessed the occurrence of adverse effects in 884,828 people in the United States who had been fully vaccinated with the mRNA BNT162b2 vaccine.²¹ The results of the study showed that there was no elevated risk associated with most of the severe adverse outcomes that were examined.²¹ While the vaccine was associated with a risk of myocarditis at a rate of one to five events per 100,000, it was noted that this risk was substantially lower than the risk of myocarditis associated with COVID-19 illness.²¹

A systematic review was conducted to determine how the immune response generated from COVID-19 vaccines compared to the immune response created by previous COVID-19 illness.²² Although the review found that naturally immunity was at least as effective as vaccine induced immunity, the authors cautioned that this did not mean individuals should seek out infection to forego vaccination.²² Rather, they emphatically stated that vaccine induced immunity carried far fewer risks than COVID-19 illness without vaccine protection.²²

Even though COVID-19 vaccines have been shown to be effective and safe, vaccine hesitancy still exists among some populations.²³ This hesitancy has even extended to healthcare professionals such as nurses.²³ However, there do not appear to be any studies that have investigated attitudes toward COVID-19 vaccination among occupational therapy professionals and students. Thus, the purpose of this study was to describe the attitudes toward COVID-19 vaccination among occupational therapy professionals and students in early 2021.

METHODS

Design

This study was conducted using a cross-sectional design with an internet-based survey for data collection.

Respondents

Participants were recruited for this study by emailing the attendees of the 2020 Texas Occupational Therapy Association Annual Symposium. Additionally, program directors for Occupational Therapist and Occupational Therapy Assistant Programs were emailed and asked to forward the study invitation to their alumni databases and current students. A total of 114 occupational therapy professionals and students (age = 41 ± 15 , years of certified experience = 13 ± 13) opened the survey link and completed the instrument. Demographic information for participants is presented in Table 1. All participants were informed of the survey's purpose and informed consent was obtained. This study was approved by The University of Texas at Tyler Institutional Review Board.

Table 1. Totals and percentages for participant demographic information.

Demographic Factor	Criteria	Responses
Sex	Female	101, 88.6%
	Male	13, 11.4%
Position	Occupational Therapist	56, 49.1%
	Occupational Therapy Assistant	25, 21.9%
	Occupational Therapy Student	31, 27.2%
Highest Degree Earned	Professional Associate's	12, 10.5%
	Professional Bachelor's	44, 38.6%
	Professional Master's	32, 28.1%
	Post-Professional Clinical Doctorate	11, 9.6%
	Academic Doctorate	15, 13.2%

Instrumentation

Following the informed consent, institutional review board information, and demographics section, the participants began the remainder of the survey. Other questions gathered information on whether or not they had had the opportunity to receive a COVID-19 vaccination. Participants were also asked if they had received a COVID-19 vaccination, and what their primary considerations were when deciding whether or not to pursue getting vaccinated.

The survey consisted of 22 total questions. These questions included: one question regarding consent to participate in the study, two fill in the blank and three multiple choice questions regarding demographic information, two questions about access to and receipt of a COVID-19 vaccination, five multiple choice questions on attitudes toward the available COVID-19 vaccines using a scale of "Strongly Disagree" to "Strongly Agree", and two ranking questions regarding considerations for whether or not to receive a COVID-19 vaccination.

Procedures

An email was sent to occupational therapists and occupational therapy assistants who had attended the 2020 Texas Occupational Therapists' Association Annual Symposium. An email was also sent to program directors of occupational therapist and occupational therapy assistant programs, asking them to send the survey invitation to their current students and alumni. These individuals were asked to complete the survey as truthfully as possible. The email included an invitation to participate in a survey, and a link from a web-based survey company (Qualtrics Inc., Provo, UT) in January 2021. A follow up email was sent two-weeks after the initial invitation, and the survey was closed a week after the second email was sent.

Data Analysis

Information from participant responses was downloaded and analyzed using a commercially available statistics package (SPSS Version 28, IBM, Armonk, NY). A total of 114 occupational therapy professionals and students responded, consented and completed the study. All 114 responses were included in the data analysis. Measures of central tendency (means, standard deviations, frequencies) were calculated where appropriate.

RESULTS

Access to and Receipt of a COVID-19 Vaccination

The majority of participants reported having access to a COVID-19 vaccination (73.7%, n=84). Of the participants who had access to the vaccine, 67.7% (n=56) elected to receive the vaccine. Based on these results, the majority of occupational therapy professionals and assistants who had access to a COVID-19 vaccination chose to receive it.

Attitudes Toward COVID-19 Vaccination

The majority of participants agreed, at least to some extent, that they felt the current level of FDA authorization for available COVID-19 vaccines was enough for them to be comfortable receiving a vaccination (78.9%, n=90). More participants stated that personal and community safety impacted their decision whether or not to receive a COVID-19 vaccination than concerns about the perceptions of others or having their liberties infringed upon. Table 2 provides a breakdown of the questions on participants' attitude toward COVID-19 vaccination.

Table 2. Responses for questions on the attitudes toward COVID-19 vaccines.

Statement	Most Common Responses (%)
I feel comfortable with the current level of authorization for available COVID-19 vaccines.	Strongly Agree, 41 (36.0%) Agree, 29 (25.4%) Somewhat Agree, 20 (17.5%)
If I had the opportunity, I would take a COVID-19 vaccine.	Strongly Agree, 69 (60.5%) Agree, 19 (16.7%) Strongly Disagree, 12 (10.5%)
I would feel safer if my local or state government required COVID-19 vaccinations.	Strongly Agree, 38 (33.3%) Strongly Disagree, 22 (19.3%) Disagree, 18 (15.8%)
I would prefer that receiving a COVID-19 vaccination be left to individual responsibility rather than to a mandate from my employer.	Strongly Agree, 38 (33.3%) Agree, 14 (14.9%) Somewhat Disagree, 14 (14.9%)
I would prefer that receiving a COVID-19 vaccination be left to individual responsibility rather than to a mandate from my state or local government.	Strongly Agree, 42 (36.8%) Agree, 20 (17.5%) Somewhat Disagree, 15 (13.2%)
Please rank the following considerations when deciding whether or not to receive a COVID-19 vaccination.	Personal Safety, 74, (64.9%) Community Safety, 27 (23.7%) Concern Over Personal Liberties, 8 (7.0%)
Please rank the following parties based off of how strongly you consider them when deciding whether or not to receive a COVID-19 vaccination.	Yourself, 54 (47.4%) Family in Household, 32 (28.1%) Patients, 14, (12.3%)

DISCUSSION

The purpose of this study was to describe the attitudes of occupational therapy professionals and students toward the currently available COVID-19 vaccines in early 2021. A secondary purpose was to describe the receipt or intent to receive a COVID-19 vaccination among occupational therapy professionals and students.

The majority of participants agreed on some level that they were comfortable with the current level of authorization the currently available COVID-19 vaccines had received from the FDA (Strongly Agree = 36.0%, Agree = 16.7%, Somewhat Agree = 10.5%). Responding occupational therapy professionals and students reported that most would feel safer if COVID-19 vaccination was required by state or local governments (55.2%). However, most participants also stated that they would rather individuals have a choice whether or not to receive a COVID-19 vaccination. This suggest that while the majority of occupational therapy professionals and students that responded feel that COVID-19 vaccinations are beneficial for mitigating the effects of the COVID-19 Pandemic, they would rather individual responsibility be the driving factor for people to receive the vaccination.

At the time of this study, the majority of occupational therapy professionals and students had had an opportunity to receive a COVID-19 vaccination. Among those who had, the majority had been vaccinated. The most important considerations for these behaviors appear to be personal safety, household safety, and community safety.

Limitations

A possible limitation of this study was the relatively low number of responses. While the total number of responses is similar to other survey-based studies conducted on occupational therapy professionals, an exhaustive and definitive statement on the attitudes and receipt of COVID-19 vaccinations among occupational therapy professionals and students would require a larger scale study.^{24,25} This study provides a framework for conducting a study that collects data from a larger number of participants.

Recommendations for Future Research

There is a need for further research into the attitudes, moods, and behaviors of occupational therapy professionals and other allied healthcare professionals related to the COVID-19 Pandemic. A previous study investigated the attitudes and receipt of a COVID-19 vaccination among athletic trainers and suggested the majority of athletic trainers had or intended to receive a COVID-19 vaccination.²⁶ Considering the role of allied healthcare professionals' in providing day-to-day patient care, it is important to evaluate the attitudes and intentions they hold regarding mitigations strategies during the COVID-19 Pandemic.

CONCLUSION

In conclusion, the majority of surveyed occupational therapy professionals and students felt the currently available evidence supported the use of COVID-19 vaccinations in early 2021. The majority of participants reported personal, household, and community safety as the primary reasons for receiving a COVID-19 vaccination. In general, these factors were more important to participants than public perceptions or concerns over personal liberties being infringed upon. As occupational therapy professionals and students continued to work in day-to-day patient care, it is important to consider the best methods for educating occupational therapy professionals and students on the potential benefits of COVID-19 vaccinations.

REFERENCES

1. Zhong BL, Luo W, Mei LH, Zhang QQ, Liu XG, Li WT, Li Y. Knowledge, attitudes, and practices toward COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: A quick online cross-sectional survey. *International Journal of Biological Sciences*. 2020;16(10):1745-1752. doi: 10.7150/ijbs.45221.
2. Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: A descriptive study. *Lancet*. 2020;395:507-513. doi: 10.1016/S0140-6736(20)30211-7
3. Patel R, Babady E, Theel ES, Storch GA, Pinsky BA, George KS, Smith TC, Bertuzzi S. Report from the American Society for Microbiology COVID-19 International Summit, 23 March 2020: Value of diagnostic testing for SARS-CoV-2/COVID-19. *American Society for Microbiology*. 2020;11(2). doi: 10.1128/mbio.00722-20.
4. Ebrahim SH, Memish ZA. COVID-19 – The role of mass gatherings. *Travel Medicine and Infectious Disease*. 2020.
5. Zhang R, Li Y, Zhang AL, Wang Y, Molina MJ. Identifying airborne transmission as the dominant route for the spread of COVID-19. *Proceeds of the National Academy of Sciences*. 2020. doi:10.1016/j.tmaid.2020.1011617.
6. Eikenberry SE, Mancuso M, Iboi E, Phan T, Eikenberry K, Kuang Y, Kostelich E, Gumel AB. To mask or not to mask: Modeling the potential for face mask use by the general public to curtail the COVID-19 pandemic. *Infectious Disease Modeling*. 2020;5:293-308. doi: 10.1016/j.idm.2020.04.001.
7. Pfizer-BioNTech COVID-19 Vaccine EUA LOA reissued November 19, 2021. U.S. Food & Drug Administration website. Updated November 19, 2021. Accessed November 26, 2021. [Pfizer-BioNTech COVID-19 Vaccine EUA LOA reissued November 19 2021 \(fda.gov\)](https://www.fda.gov/oc/2021/11/pfizer-biontech-covid-19-vaccine-eua-loa-reissued-november-19-2021)
8. Comirnaty and Pfizer-BioNTech COVID-19. Vaccine. U.S. Food & Drug Administration website. Updated November, 23, 2021. Accessed November 26, 2021. [Comirnaty and Pfizer-BioNTech COVID-19 Vaccine | FDA](https://www.fda.gov/oc/2021/11/comirnaty-and-pfizer-biontech-covid-19-vaccine-fda)
9. Ali K, Berman G, Zhou H, Deng W, Faughnan V, Coronado-Voges M, Ding B, Dooley J, Girard B, Hillebrand W, Pajon R, Miller JM, Leav B, McPhee R. Evaluation of mRNA-1273 SARS-CoV-2 vaccine in adolescents. *The New England Journal of Medicine*. 2021. doi: 10.1056/NEJMoa2109522.
10. Anderson EJ, Roupheal NG, Widge AT, Jackson LA, Roberts PC, Makhene M, Chappell JD, Denison MR, Stevens LJ, Pruijssers AJ, McDermott AB, Flach B, Lin BC, Doria-Rose NA, O'Dell S, Schmidt SD, Corbett KS, Swanson PA, Padilla M, Neuzil KM, Bennet H, Leav B, Makowski M, Albert J, Cross K, Edara VV, Floyd K, Suthar MS, Martinez DR, Baric R, Buchanan W, Luke CJ, Phadke VK, Rostad CA, Ledgerwood, Graham BS, Beigel JH. Safety and immunogenicity of SARS-CoV-2 mRNA-1273 vaccine in older adults. *The New England Journal of Medicine*. 2020;383(25):2427-2438. doi: 10.1056/NEJMoa2028436.
11. Baden LR, El Shaly HM, Essink B, Kotloff K, Frey S, Novak R, Diemert D, Spector SA, Roupheal N, Creech CB, McGettigan J, Khetan S, Segall N, Solis J, Brosz A, Fierro C, Schwartz H, Neuzil K, Corey L, Gilbert P, Janes H, Follmann D, Marovich M, Mascola J, Polakowski L, Ledgerwood J, Graham BS, Bennett H, Pajon R, Knightly C, Leav B, Deng W, Zhou H, Han S, Ivarsson M, Miller J, Zaks T. Efficacy and safety of the mRNA-1273 SARS-CoV-2 vaccine. *The New England Journal of Medicine*. 2021;384(5):304-416. doi: 10.1056/NEJMoa2035389.
12. Barda N, Dagan N, Cohen C, Hernan MA, Lipsitch M, Kohane IS, Reis BY, Balicer RD. Effectiveness of a third dose of the BNT162b2 mRNA COVID-19 vaccine for preventing severe outcomes in Israel: An observational study. *Lancet*. 2021. doi: 10.1016/S0140-6736(21)02249-2.
13. Dagan N, Barda N, Biron-Shental T, Makov-Assif M, Key C, Kohane IS, Hernan MA, Lipsitch M, Hernandez-Diaz S, Reis BY, Balicer RD. Effectiveness of the BNT162b2 mRNA COVID-19 vaccine in pregnancy. *Nature Medicine*. 2021;27:1693-1695. doi: 10.1038/s41591-021-01490-8.
14. Hall VJ, Foulkes S, Saei A, Andrews N, Ogoti B, Charlett A, Wellington E, Stowe J, Gillson N, Atti A, Islam J, Karagiannis I, Munro K, Khawam J, Chand MA, Brown CS, Ramsay M, Lopez-Bernal J, Hopkins S. COVID-19 vaccine coverage in health-care workers in England and effectiveness of BNT162b2 mRNA vaccine against infection (SIREN): A prospective, multicentre, cohort study. *Lancet*. 2021;397(1725-1735). doi: 10.1016/s0140-6736(21)00790-x.
15. Jabal KA, Ben-Amram H, Beirtui K, Batheesh Y, Sussan C, Zarka S, Edelstein M. Impact of age, ethnicity, sex and prior infection status on immunogenicity following a single dose of the BNT162b2 mRNA COVID-19 vaccine: Real-

- world evidence from healthcare workers, Israel, December 2020 to January 2021. *Eurosurveillance*. 2021;26(6). doi: 10.2807/1560-7917.es.2021.26.6.2100096.p
16. Peretz SB, Regev N, Novick L, Nachshol M, Goffer E, Ben-David A, Asraf K, Doolman R, Levin EG, Yochay GR, Yinon Y. Short-term outcome of pregnant women vaccinated with BNT162b2 mRNA COVID-19 vaccine. *Ultrasound in Obstetrics Gynecology*. 2021;58:450-456. doi: 10.1002/uog.23729.
 17. Pegu A, O'Connell SE, Schmidt SD, O'Dell S, Talana CA, Lai L, Albert J, Anderson E, Bennett H, Corbett KS, Flach B, Jackson L, Leav B, Ledgerwood JE, Luke CJ, Makowski M, Nason MC, Roberts PC, Roederer M, Rebolledo PA, Rostad CA, Roupheal NG, Shi W, Wang L, Widge AT, Yang ES, Beigel JH, Graham BS, Mascola JR, Suthar MS, McDermott AB, Doria-Rose NA. Durability of mRNA-1273 vaccine-induced antibodies against SARS-CoV-2 variants. *Science*. 373:1372-1377. doi: 10.1101/2021.05.13.444010.
 18. Pilishivili T, Gierke R, Fleming-Dutra KE, Farrar JL, Mohr NM, Talan DA, Krishnadasan A, Harland KK, Smithline HA, Hou PC, Lee LC, Lim SC, Moran GJ, Krebs E, Steele MT, Beiser DG, Faine B, Haran JP, Nandi U, Schrading WA, Chinnock B, Henning DJ, Lovecchio F, Lee J, Barter D, Brackney M, Fridkin SK, Marceaux-Galli K, Lim S, Phipps EC, Dumyati G, Pierce R, Markus TM, Anderson DJ, Debes AK, Lin MY, Mayer J, Kwon JH, Safdar N, Fischer M, Singleton R, Chea N, Magill SS, Verani JR, Schrag SJ. Effectiveness of mRNA COVID-19 vaccine among U.S. health care personnel. *The New England Journal of Medicine*. 2021. doi: 10.1056/NEJMoa2106599.
 19. Polack FP, Thomas SJ, Kitchin N, Absalon J, Gurtman A, Lockhart S, Perez JL, Marc GP, Moreira ED, Zerbini C, Bailey R, Swanson KA, Roychoudhury S, Koury K, Li P, Kalina WV, Cooper D, French RW, Hammitt LL, Tureci O, Nell H, Schaefer A, Unal S, Tresnan DB, Mather S, Dormitzer PR, Sahin U, Jansen KU, Gruber WC. Safety and efficacy of the BNT162b2 mRNA Covid-19 vaccine. *The New England Journal of Medicine*. 2020. doi:10.1056/NEJMoa2034577.
 20. Tartof SY, Slezak JM, Fischer H, Hong V, Ackerson BK, Ranasinghe ON, Frankland TB, Ogun OA, Zamparo JM, Gray S, Valluri SR, Pan K, Angulo FJ, Jodar L, McLaughlin JM. Effectiveness of mRNA BNT162b2 COVID-19 vaccine up to 6 months in a large integrated health system in the USA: A retrospective cohort study. *Lancet*. 2021;398:1407-1416. doi: 10.1016/s0140-6736(21)02183-8.
 21. Barda N, Dagan N, Ben-Shlomo Y, Kepten E, Waxman J, Ohana R, Hernan MA, Lipsitch M, Phil D, Kohane I, Netzer D, Reis BY, Balicer RD. Safety of the BNT162b2 mRNA Covid-19 vaccine in a nationwide setting. *The New England Journal of Medicine*. 2021;381(12):1078-1090. doi: 10.1056/NEJMoa2110475.
 22. Shenai MB, Rahme R, Noorchasm H. Equivalency of protection from natural immunity in COVID-19 recovered versus fully vaccinated persons: A systematic review and pooled analysis. *Cureus*. 2021;13(10). doi: 10.1101/2021.09.21.21263461
 23. Kwok KO, Li KK, Wei WI, Tang A, Wong SY, Lee SS. Influenza vaccine uptake, COVID-19 vaccination intention and vaccine hesitancy among nurses: A survey. *International Journal of Nursing Studies*. 2021;114(1). doi: 10.1016/j.ijnurstu.2020.103854.
 24. Usher R, Sapleton T. Occupational therapy and decision-making capacity assessment: A survey of practice in Ireland. *Australian Occupational Therapy Journal*. 2020;67:110-120. doi: 10.1111/1440-1630.12629.
 25. Stein Duker LI, Sleight AG. Occupational therapy practice in oncology care: Results from a survey. *Nursing & Health Sciences*. 2019;21:164-170. doi: 10.1111/nhs.12576.
 26. Cage SA, Warner BJ, Ballard B, Gallegos DM, Goza JP, Warner LK. Attitudes toward COVID-19 vaccination among athletic trainers in early 2021. *Research & Investigations in Sports Medicine*. 2021;8(1):693-696. doi: 10.31031/risrm/2021.08.00676.
-