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## COVID-19 Symptoms of UVU Students

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COVID-19, the disease caused by the SARS-CoV2 virus, first emerged in late 2019 and rapidly became a worldwide problem. Now at the two-year mark of the pandemic, many experts predict a transition to an endemic future with the virus (N. Phillips, 2021). This transition will be interesting, as those who have suffered from COVID may have “long-hauler” symptoms or what is being classified as “post-COVID-19 syndrome” and “long COVID-19” (Sheposh, 2021). The Centers for Disease Control and Prevention (CDC) classify post-COVID as “a wide range of new, returning, or ongoing health problems people can experience four or more weeks after being infected... Even people who did not have COVID-19 symptoms in the days or weeks after they were infected can have post-COVID conditions” (CDC, 2020). The symptoms that are commonly reported include “Difficulty breathing, fatigue, difficulty concentrating (brain fog), cough, headache, joint or muscle pain, diarrhea, sleep problems, fever, dizziness, and/or change in smell or taste” (CDC, 2020). Most of these symptoms are acute within the first two weeks, but any one of them can become chronic. These symptoms can also be experienced individually or in combination with other symptoms. The condition is frustrating because there seem to be few answers yet regarding which patients will fully recover from COVID and which will have these life-altering, long-term symptoms (S. Phillips & Williams, 2021).

As higher education seeks a way forward in managing COVID, one potential area of concern could be long-term COVID cases in their students. One study from King’s College London found that approximately 10% of 19-49-year-olds who contract COVID would have long-term effects (Sudre et al., 2020). A more current meta-analysis determined that at least 60% of those who contract SARS-CoV-2 will have one long-term COVID-19 symptom. Fatigue and difficulty breathing were the main lingering symptoms in patients who received hospital treatment and those who did not. Researchers recommended counseling for long COVID-19 patients experiencing symptoms (Fernández-de-las-Peñas et al., 2021). Currently, at Utah Valley University (UVU), there have been over 2,000 positive student cases since April 2020 (*COVID-19 Information | Utah Valley University*, n.d.). If assumed that 60% of those cases are dealing with at least one symptom post-COVID, then that could mean the post-COVID-19 syndrome has impacted potentially 1,200 students. With the prediction that the pandemic is becoming endemic, COVID-19 is here to stay, and case counts will continue to increase steadily over time. The

small but significant group of students impacted could have severe long-term complications to their quality of life that make it difficult to succeed in their education.

This study examined UVU students who have received at least one positive COVID test to determine if they only had acute symptoms or if they also have had chronic symptoms. This data is beneficial to college-aged students and the university itself to determine potential risks for students who have contracted COVID-19 and offer help/resources for those who may now have the post-COVID-19 syndrome.

### **Methods (H1)**

The author created the survey with the help of the research team and then submitted it for approval through UVU's Institutional Review Board (IRB I.D. 899, approved on October 26, 2021). It was also approved by UVU's Institutional Research (IR) to be sent out with their once-per- semester Student Opinion Survey. The Student Opinion Survey is a simple random survey sent out to registered students from November 1st to November 30th. Students are sent an online link to the survey conducted through Qualtrics (a research data collection company). If students wished to take the survey questions associated with this study, they submitted an informed consent, and then they proceeded to the ten questions within the survey.

### **Data Analysis (H2)**

All data collected first went to UVU's IR department. The data was transferred to Excel and then given to the research team with all identifying information removed. Cleaning the data consisted of eliminating participants who did not consent and/or did not indicate a positive COVID-19 diagnosis. The data was then transferred to the computer software SPSS (Version 25) for further analysis. Statistical analysis included frequency, descriptive tests, and correlation coefficients.

### **Results (H3)**

Of the 507 students who took the Student Opinion Survey, 448 agreed to the COVID study, and 94 (21%) received a positive COVID test. The dates of positive tests were split almost equally, with 54 (58%) coming from 2020 and 39 (42%) occurring in 2021. At the beginning of the survey, one of the questions targeted individual health practices leading up to receiving a positive test. Students had a choice on a scale of 1-5 if they strongly agreed (1) or disagreed (5) with how likely they would follow a statement. The average for all six statements (avoiding crowded spaces, wearing a mask, socially distancing, washing hands, quarantining after exposure, and isolating after a positive test) leaned towards students agreeing and strongly agreeing to comply with the health measures. The highest averages (which leaned towards disagreement on the scale 1-5) were avoiding crowded spaces and socially distancing at 2.19 and 2.08, respectfully, which indicates that there was disagreement from some students with avoiding crowded spaces and socially distancing (see [Table A1](#)).

Table A1. Individual Health Practices

| Measurement                   | Minimum | Maximum | Mean | Std. Dev. |
|-------------------------------|---------|---------|------|-----------|
| Avoiding crowded spaces       | 1       | 5       | 2.19 | 1.221     |
| Wearing a mask                | 1       | 5       | 2.00 | 1.287     |
| Socially distancing           | 1       | 5       | 2.08 | 1.262     |
| Washing hands                 | 1       | 4       | 1.40 | 0.645     |
| Quarantining after exposure   | 1       | 5       | 1.75 | 1.080     |
| Isolating after positive test | 1       | 5       | 1.21 | 0.602     |

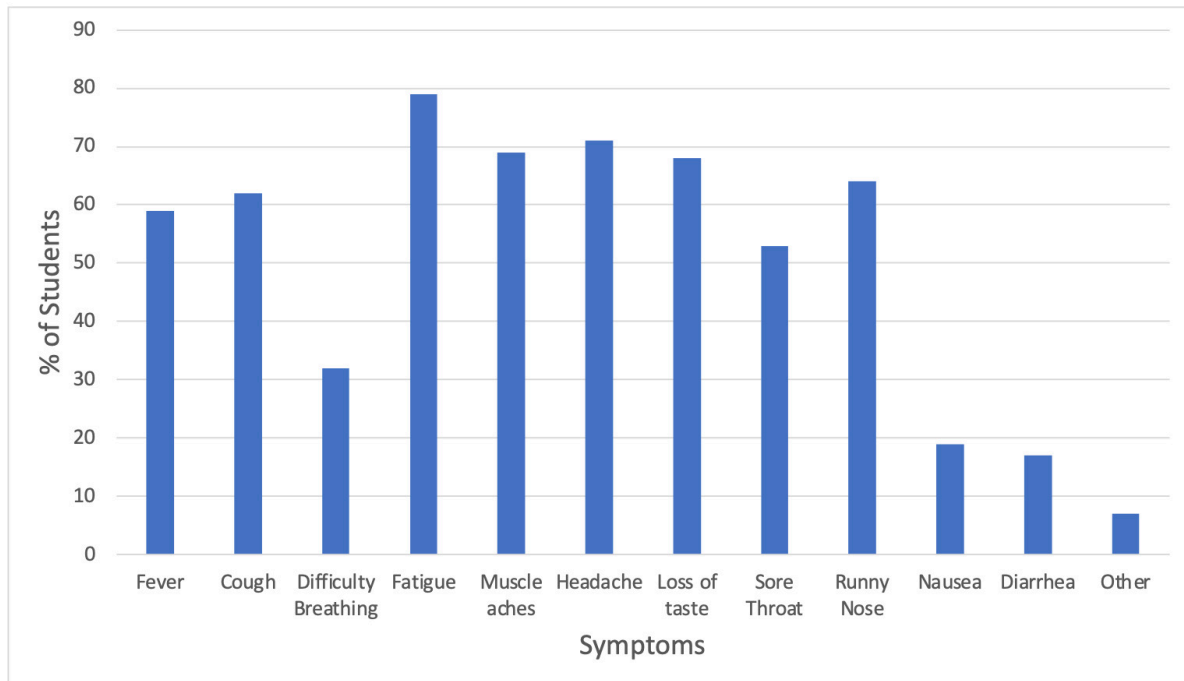


Figure B1. Symptoms During First Two Weeks

### Symptoms (H4)

The collection of symptom data from the survey was separated into three main categories or questions: 1) Symptoms experienced during the first two weeks 2) Symptoms experienced for longer than two weeks 3) Symptoms that they may still be experiencing and indicate long COVID-19.

#### Symptoms Experienced During First Two Weeks (H5)

Acute symptoms followed established trends of cold/flu-like symptoms in COVID patients. Fatigue was most prevalent (79%, n=74) followed by headache (71%, n=67), muscle or body aches (69%, n=65), congestion or runny nose (64%, n=60), cough (62%, n=58), fever or chills (59%, n=55), and sore throat (53%, n=50). Difficulty breathing (dyspnea) was surprisingly low (32%, n=30), and the relatively new symptom loss of taste or smell was high (68%, n=64). The less common symptoms of nausea or vomiting (19%, n=18) and diarrhea (17%, n=16) were low as well (see [Figure B1](#)).

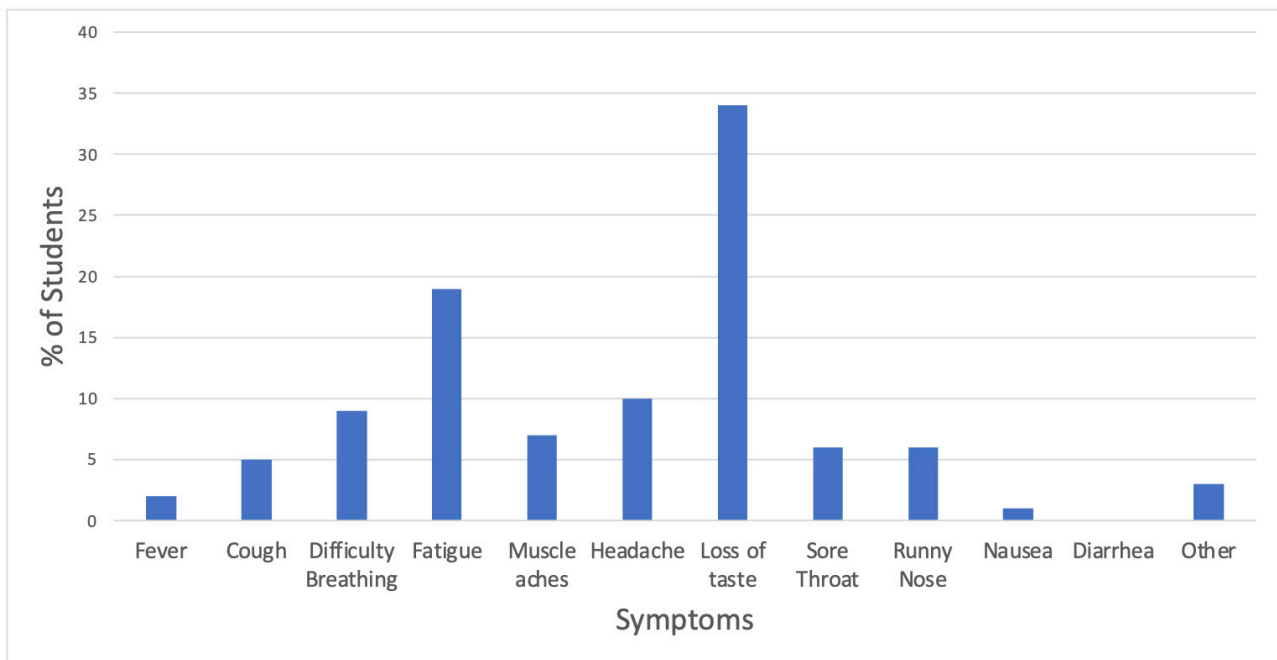


Figure B2. Symptoms Lasting Longer than Two Weeks

### Symptoms Experienced Longer than Two Weeks (H6)

Most students recovered from symptoms within the first two weeks, and very few were still having trouble with cold/flu-like symptoms at that point. Fatigue (19%,  $n=18$ ) was still the highest reported, with headache at 10% ( $n=9$ ), muscle or body aches at 7% ( $n=18$ ), sore throat at 6% ( $n=6$ ), and congestion or runny nose coming in at the same rate of 6% ( $n=6$ ). Cough (5%,  $n=5$ ) and fever or chills (2%,  $n=2$ ) had all but dropped off. Similarly, only one person had nausea or vomiting (1%,  $n=1$ ), and no one was experiencing diarrhea at the two-week point post-infection. Loss of smell or taste was the highest-rated symptom (34%,  $n=32$ ) that students were experiencing after two weeks (see [Figure B2](#)).

Overall, every person who participated in the study experienced at least one symptom. The average number of symptoms experienced in the first two weeks was 6. At the two-week mark, 50% ( $n=46$ ) were not experiencing any more symptoms, and 27% ( $n=25$ ) were only experiencing one symptom. There was a positive, statistically significant correlation between the number of symptoms experienced during the first two weeks and the number of symptoms experienced after two weeks ( $r=0.414$ ,  $p<0.01$ ). The correlation shows that those who had more symptoms in the first two weeks experienced more symptoms two weeks later.

### Symptoms that Indicate Long COVID-19 (H7)

The last set of questions related to students' symptoms while taking the survey. As the previous sections showed, most students seem to recover entirely from COVID in the first two weeks, but there are still some (23%,  $n=22$ ) that

have symptoms past two weeks of a positive test and therefore fall into the category of long COVID-19. Nine responses indicate their positive test was in 2020, while the remaining thirteen positive tests come from 2021.

The highest ongoing symptom reported from the years 2020 and 2021 combined was a loss of taste or smell (18%, n=17), then brain fog (7%, n=7), difficulty breathing (6%, n=6), cough (3%, n=3), and headaches (4%, n=4). Muscle or body aches, and difficulty sleeping were both low in reporting (2%, n=2). Out of all 94 responses, 2 students had to receive treatment in a hospital.

### Discussion (H8)

This study found evidence to support the common cold/flu-like symptoms that affect most COVID patients. According to one meta-analysis, fatigue and respiratory problems (coughing and difficulty breathing) are prevalent at the onset of COVID and become long-term symptoms (Sanchez-Ramirez et al., 2021). Fatigue was the leading cold/flu symptom in this study within the first two weeks of contracting COVID (79%) and still prevalent after two weeks (19%). The promising data from this study is that college-aged students are recovering from the acute symptoms relatively quickly (50% had no symptoms after two weeks) and contracting the virus will most likely not impact their schoolwork. Fatigue as a long-term side-effect of COVID-19 is a legitimate concern and should continue to be monitored.

One of this study's more interesting data points is the perplexing loss of taste or smell. Several studies showed early on that the loss of taste or smell was becoming a symptom of COVID-19 (Dawson et al., 2021), and it soon became an indicator of the infection itself (Menni et al., 2020). In this study, 68% of students lost taste or smell in the first two weeks, 34% reported it lasted longer than two weeks, and 18% were still experiencing it after at least one month. It is most likely something that will not impact students' schoolwork but may potentially impact mental health and quality of life in those who have it long term. According to the Mayo Clinic, "approximately 90% of those affected can expect improvement within four weeks. Unfortunately, some will experience a permanent loss." (*Q&A: COVID-19 and Loss of Smell, Taste*, n.d.). Students should be aware that if they contract COVID-19, this very likely may be a symptom they experience and may have for a prolonged time. Struggling with the loss of taste or smell may put them at risk for depression (Speth et al., 2020), which can seriously impact the ability to focus on school.

### Limitations (H9)

The main limitation with this study was the lack of access to identifiable student features that may help reveal trends according to age, sex, or vaccination status. As with any self-reported data, there is the possibility of dishonest or socially acceptable answers. When it comes to COVID symptoms, it can also be hard to know how long symptoms lasted and what symptoms they had for sure because of the reliance on the participant's memory.

## Conclusion (H10)

The results from this study show that students who received a positive COVID-19 test experienced the established range of acute cold/flu-like symptoms within the first two weeks. Most students recovered from acute symptoms after two weeks, but on average, students that fully recovered with no long-term symptoms took about three weeks. A percentage of college students (21% from this study) are getting sick with symptoms but are recovering relatively quickly and without having to seek further medical treatment. This study also shows that it is highly likely that the young adults who suffer from post- COVID-19 syndrome will have symptoms in the form of fatigue or loss of taste and smell. Further studies will be needed to determine how COVID variants may impact higher education students and to know for sure how long post-COVID-19 symptoms may last.



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## References

- CDC. (2020, February 11). *COVID-19 and Your Health*. Centers for Disease Control and Prevention. <https://www.cdc.gov/coronavirus/2019-ncov/long-term-effects/index.html>
- COVID-19 Information | Utah Valley University. (n.d.). Retrieved November 21, 2021, from <https://www.uvu.edu/covidinfo/>
- Dawson, P., Rabold, E. M., Laws, R. L., Conners, E. E., Gharpure, R., Yin, S., Buono, S. A., Dasu, T., Bhattacharyya, S., Westergaard, R. P., Pray, I. W., Ye, D., Nabity, S. A., Tate, J. E., & Kirking, H. L. (2021). Loss of Taste and Smell as Distinguishing Symptoms of Coronavirus Disease 2019. *Clinical Infectious Diseases*, 72(4), 682–685. <https://doi.org/10.1093/cid/ciaa799>
- Fernández-de-las-Peñas, C., Palacios-Ceña, D., Gómez-Mayordomo, V., Florencio, L. L., Cuadrado, M. L., Plaza-Manzano, G., & Navarro-Santana, M. (2021). Prevalence of post-COVID-19 symptoms in hospitalized and non-hospitalized COVID-19 survivors: A systematic review and meta-analysis. *European Journal of Internal Medicine*, 92, 55–70. <https://doi.org/10.1016/j.iejim.2021.06.009>
- Menni, C., Valdes, A. M., Freidin, M. B., Ganesh, S., Moustafa, J. S. E.-S., Visconti, A., Hysi, P., Bowyer, R. C. E., Mangino, M., Falchi, M., Wolf, J., Steves, C. J., & Spector, T. D. (2020). *Loss of smell and taste in combination with other symptoms is a strong predictor of COVID-19 infection*. <https://doi.org/10.1101/2020.04.05.20048421>
- Phillips, N. (2021). The coronavirus is here to stay—Here’s what that means. *Nature*, 590(7846), 382–384. <https://doi.org/10.1038/d41586-021-00396-2>
- Phillips, S., & Williams, M. A. (2021). Confronting Our Next National Health Disaster — Long-Haul Covid. *New England Journal of Medicine*, 385(7), 577–579. <https://doi.org/10.1056/nejmp2109285>
- Q&A: COVID-19 and loss of smell, taste. (n.d.). Mayo Clinic Health System. Retrieved November 27, 2021, from <https://www.mayoclinichealthsystem.org/hometown-health/featured-topic/q-and-a-covid-19-and-loss-of-smell-taste>
- Sanchez-Ramirez, D. C., Normand, K., Zhaoyun, Y., & Torres-Castro, R. (2021). Long-Term Impact of COVID-19: A Systematic Review of the Literature and Meta-Analysis. *Biomedicine*, 9(8), 900. <https://doi.org/10.3390/biomedicine9080900>
- Sheposh, R. (2021). Coronavirus Disease 2019 (COVID-19). In *Salem Press Encyclopedia of Health*. Salem Press. <https://ezproxy.uvu.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=ers&AN=142379071&site=eds-live>
- Speth, M. M., Singer-Cornelius, T., Oberle, M., Gengler, I., Brockmeier, S. J., & Sedaghat, A. R. (2020). Mood, Anxiety and Olfactory Dysfunction in COVID-19: Evidence of Central Nervous System Involvement? *The Laryngoscope*, 130(11), 2520–2525. <https://doi.org/10.1002/lary.28964>
- Sudre, C. H., Murray, B., Varsavsky, T., Graham, M. S., Penfold, R. S., Bowyer, R. C., Pujol, J. C., Klaser, K., Antonelli, M., Canas, L. S., Molteni, E., Modat, M., Cardoso, M. J., May, A., Ganesh, S., Davies, R., Nguyen, L. H., Drew, D. A., Astley, C. M., ... Steves, C. J. (2020). *Attributes and predictors of Long-COVID: Analysis of COVID cases and their symptoms collected by the Covid Symptoms Study App*. <https://doi.org/10.1101/2020.10.19.20214494>