University of Alabama in Huntsville

Honors Capstone Projects and Theses

Honors College

4-25-2024

An Analysis of Students' Technology Use, Socioemotional Wellbeing, and Mental Health During COVID-19

Grace S. Oswald University of Alabama in Huntsville

Follow this and additional works at: https://louis.uah.edu/honors-capstones

Recommended Citation

Oswald, Grace S., "An Analysis of Students' Technology Use, Socioemotional Well-being, and Mental Health During COVID-19" (2024). *Honors Capstone Projects and Theses*. 906. https://louis.uah.edu/honors-capstones/906

This Thesis is brought to you for free and open access by the Honors College at LOUIS. It has been accepted for inclusion in Honors Capstone Projects and Theses by an authorized administrator of LOUIS.

An Analysis of Students' Technology Use, Socioemotional Well-being, and Mental Health During COVID-19

by

Grace S. Oswald

An Honors Capstone submitted in partial fulfillment of the requirements

for the Honors Diploma

to

The Honors College

of

The University of Alabama in Huntsville

April 25, 2024

Honors Capstone Project Director: Dr. Jodi Price

the lend

04/25/2024

Student

Date

Project Director

Date

Department Chair

Date

4/25/24

Honors College Dean

Date



Honors College Frank Franz Hall +1 (256) 824-6450 (voice) +1 (256) 824-7339 (fax) honors@uah.edu

Honors Thesis Copyright Permission

This form must be signed by the student and submitted with the final manuscript.

In presenting this thesis in partial fulfillment of the requirements for Honors Diploma or Certificate from The University of Alabama in Huntsville, I agree that the Library of this University shall make it freely available for inspection. I further agree that permission for extensive copying for scholarly purposes may be granted by my advisor or, in his/her absence, by the Chair of the Department, Director of the Program, or the Dean of the Honors College. It is also understood that due recognition shall be given to me and to The University of Alabama in Huntsville in any scholarly use which may be made of any material in this thesis.

Grace S Oswald

Student Name (printed)

le l'en

Student Signature

04/25/2024

Date

Table of Contents

Dedication	4
Abstract	5
Introduction	6
Method	11
Results	14
Social Connection	14
Mental and Emotional Health	14
Technology Use	15
Discussion	16
References	19
Tables and Figures	24
Appendix	31

Dedication

Thank you to my advisor, Dr. Jodi Price, for saying "we can make that work" to my crazy, freshman-addled, brainchild. And to my ex, without whose breakup I never would have started this project.

Abstract

The Sars-COV-2 pandemic caused several waves of intense periods of social isolation for many generations. Isolation and loneliness are associated with lower well-being and increased physical and mental distress. As social distancing was enforced, individuals turned to virtual forms of connection during the pandemic. Technology, especially social media, has been used as a form of social connection to maintain and expand social networks. This study focused on the impact of isolation on socioemotional well-being and technology use on UAH students during COVID-19. Through a survey distributed in the fall of 2022, 264 students responded to questions on their perceived levels of isolation, loneliness, and mental emotional distress, as well as the extent to which technology alleviated the impact of quarantine. Results indicated a majority of students felt anxious, worried, and isolated during the pandemic. Technological social connections were reported to help mitigate the social disconnect but fell short of replacing face-to-face interactions. Technology adoption itself was reported as both stressful and exciting. Selfdetermination theory and Erik Erikson's stage of Isolation vs. Intimacy were used to explain how quarantine could impact a generation of college students' development in addition to mental and emotional health. As this study failed to collect racial/ethnic demographic data, future research could examine the differences in responses between White and minority students as minority groups were disproportionately impacted by the pandemic and historically have less access to technology.

Keywords: COVID-19, social isolation, technology use, socioemotional well-being

Introduction

I started college in the fall of 2020, officially termed "Fall 2020 – COVID19" by the university. This entire academic year was defined by the pandemic. Masks, social distancing, and mental health crises were present in both me and those who I met freshman year. Personally, the enforcement of social distancing greatly impacted my college journey. Forced to stay completely within one's dorm, visitation was strictly not allowed. Masks, daily online COVID-19 screens, completely online classes, and limited socialization opportunities turned what had been promoted as "the best time of one's life" into an intellectual prison of sorts. It was through this experience that my mental health was greatly impacted. Without the social buffer for stress and perceived ease of access to academic support, hopelessness was very prevalent. Others around me felt the same. From roommates to classmates, discourse about how miserable we were filled many hours of my freshman year. This research project was intended to shed light on the incredible impact that starting college during a global pandemic had on students personally, academically, and socially.

In late 2019, a virus emerged from Wuhan, China, formally named SARS-CoV-2. Shortened to COVID-19, this virus started a global pandemic, resulting in over 774 million confirmed cases and over 3 million deaths (World Health Organization, n.d.). At its peak, COVID-19 cases overwhelmed the health care systems in many countries, including the United States of America. In an attempt to quell the rising case numbers, the Centers for Disease Control (CDC) issued a series of precautionary measures, specifically social distancing and masking. Within days, mass quarantine measures swept the country as the nation entered a state of emergency. Vaccinations against this virus were rushed out to the public as safely as possible, sparking political debate over freedom rights and distancing protocols. Municipalities at federal, national, state, and city levels banned travel for those who were deemed "non-essential" employees. Workplaces transitioned to remote operations, schools went online, and a cohort of students did college from their rooms, whether on-campus or not. As a result, a whole new cohort of students was finishing up high school and entering a once highly community-focused atmosphere now wrought with government-enforced isolation and a looming fear of spreading a virus.

In daily life, individuals have a broad list of tasks to accomplish and usually possess the ability to complete these tasks in the manner they choose. Because of variations in task, importance, or external factors, an individual may not have the option to choose how, or in what order, things can be done. For example, during the COVID-19 lockdowns, movement was restricted, as in-person activities were banned. No longer were individuals allowed to choose whether to leave the house or not; the government mandates had made the choice for them. This ability to choose, or the degree of choice, is discussed by the term autonomy. Autonomy, as defined by the American Psychological Association, is the experience of acting from choice, rather than feeling pressured to act (APA, n.d.). Specifically, this form of autonomy is considered a fundamental psychological need that predicts well-being and is incredibly prevalent in the discussion of self-determination theory (SDT). SDT itself focuses on how three pillars of human ability (autonomy, competence, and relatedness) relate to the social interactions and selfimage of an individual (Dimmock et al., 2022). When these needs are satisfied, individuals report increased well-being, positive regard for oneself and others, and adaptability to stress, in addition to competently mediating social connections.

To begin the conversation on social isolation, loneliness, and quarantine, isolation must first be explained. Social isolation is defined by the American Psychological Association as voluntary or involuntary absence of contact with others (APA, n.d.). Physical isolation is the removal of an individual, or group, from the contact of others, but isolation is not limited to physical manifestation. Disagreeing upon views, beliefs, and lifestyles can create exclusion from a group, though physical interactions can still occur. Social isolation is often qualified by professionals as "perceived" (Cacioppo & Cacioppo, 2014; Hawthorne, 2008), as the physical removal from society may not equate to feelings of seclusion. Individual differences can greatly influence the degree to which one feels removed from society and the emotional impact of this removal. For example, age and developmental stage can influence the depth and quantity of relational needs. If not met, feelings of isolation may occur.

Perceptions of isolation change over a lifespan. In their research, Laursen and Hartl (2013) examined the developmental changes in adolescents that may influence feelings of isolation. One such developmental shift was the weaning off of family contacts and further reliance on peer feedback and support to fulfill social needs. Furthermore, cognitive development in young adults allows for an increased understanding of communication and social nuances. Finding a peer group to identify with is imperative for having a supportive view of self, and leads to a healthy development of autonomy and individualization. Failure to allow autonomy on par with peer groups can stunt an individual socially and emotionally (Pavlova et al., 2011). Unfortunately, with the restrictions imposed upon the world during the pandemic, standard adolescent achievements (prom, going away to college, etc.) were unable to occur. This lack of social autonomy and ability to interact with peers could have the ability to reinforce those already susceptible to feelings of isolation by depriving them of the ability to find a peer group with which to identify.

Loneliness, defined as affective and cognitive discomfort or uneasiness from being or perceiving oneself to be alone or otherwise solitary (APA, n.d.), is independent of physical or social isolation. Similar to isolation, loneliness is not affixed to a generation, age, or stage of life. Loneliness can be triggered by physical isolation from a social group, but can occur outside of social separation. Loneliness varies based on an individual's perception, life experiences, personality, and developmental stage. However, social isolation does not always lead to loneliness, as one may not interpret being alone to a personal, or permanent, flaw (Laursen & Hartl, 2013). Research by Kong and You (2013) examined the role of isolation and self-esteem as they related to mediating social support and life satisfaction in late adolescence. Using structural equation modeling and principles of subjective well-being, Kong and You modeled a path wherein individuals with high social support are likely to report higher self-esteem, which may lower their loneliness and in turn, lead to high life satisfaction (2013).

The removal of social support, such as during the COVID-19 quarantine, has been cited in many journals for having detrimental effects on mental and emotional well-being. One such article identified the snowball effect of isolation, loneliness, and mental health in Australians during the lockdown (Johnston & Olivia, 2021). Results indicated that individuals living alone were significantly more depressed, anxious, and emotionally disturbed as the lockdowns continued in number and time. Living alone, especially, was a key cited reason for feeling isolated and unsupported. Humans are social creatures; this much the international community acknowledges. We live, eat, and play, in communities built specifically for the purpose of doing it all together. College is no exception. Routines of study sessions, attending in-person classes, and coffee dates help structure the weeks, months, and years of a student's life. In Erik Erickson's (1963) psychosocial theories of development, college age and beyond moves into a period of Intimacy vs. Isolation, where individuals are picking partners and friends to carry with them into true adulthood. These are the individuals with which they will have children, grow with, and cement their importance in the world. Proper development moves from isolation toward intimacy: partner, friends, community. However, with the lockdowns during the pandemic, nearly all young adults were plunged into abnormal isolation patterns. Education itself was mostly in-person before the COVID-19 pandemic. Education is a key source of social connection in children in early to late adolescence (van Loon et al., 2021). As social and peer interaction is a key part of adolescence, and school provides that on a daily basis, the removal of in-person interaction in schools caused social isolation for many individuals.

As technology progressed, so did its use for social connection. Initially viewed as a threat to emotional well-being, online options for interaction have been shown to help aging individuals (Freeman et al., 2020), those who are disabled (Townsend et al., 2016), and individuals dealing with long distances in contact with the outside world and one another. Research by Wu et al. (2016), through an online database analysis, found support for technology and internet use, such as social media and texting, improved perceptions of connection to friends and family members. This research corroborated past findings that technology facilitates the creation of new relationships and assists in the sustaining of previously established relationships (Clark et al., 2018). This maintenance of relationships furthers well-being by promoting social feedback not limited to the brief periods of in-person interaction.

As the COVID-19 lockdown provided a perfect storm of social isolation, technological changes, and developmental impact, this research sought to understand an aspect of the impact on college students. As social isolation is linked to physical and emotional distress (Wu et al., 2016) in addition to the removal of choice impacting well-being (Dimmock et al., 2022), the

mean well-being and mental distress scores were expected to be higher than the ideal average. Additionally, reported feelings of isolation were expected to be frequently indicated by participants. Technology use, both its connection to social needs and learning modalities, were also explored, and hypothesized to be used to mediate in-person connection but leave gaps of social connection unfulfilled (Käcko & Nyman-Kurkiala, 2024). As removal of in-person communication was not a personal choice (due to the COVID-19 lockdowns), feelings of being forced to use technology and perceived stress regarding the adoption of it were hypothesized to be indicated by participants.

Method

Participants

Participants (N = 264, Mean age = 22 years) were recruited from the university's undergraduate SONA pool. In all, 31.8% (n = 84) of participants identified as male, 63.6% (n = 168) identified as female, 4.2% (n = 11) identified as non-binary, and 0.4% (n = 1) indicated "other". Four participants were excluded for incomplete survey responses and were thus not included in the reported total participant number. All academic colleges were represented in the subject pool, in addition to participants from every year in college (freshman through senior). **Design**

This study was approved by UAH's Internal Review Board (IRB) and involved the creation of a self-report survey focusing on gaining information on reflections of personal experiences during the COVID-19 pandemic. Data were analyzed using the Statistical Package for the Social Sciences (SPSS).

Materials

This online survey was created, and administered, through Qualtrics, with the license provided by The University of Alabama in Huntsville. The survey consisted of 231 questions covering 9 sections: (1) demographics and housing information, (2) emotional health, (3) lifestyle, (4) eating habits and exercise, (5) school and technology, (6) capitol riots, (7) 2022 election, (8) stressors, and (9) COVID-19 and vaccine. A complete breakdown of how many questions were in each section can be found in Table 1, and a list of the questions approved by the IRB can be found in the appendix. The questions sought to holistically examine the personal, academic, and environmental experiences of students during the COVID-19 pandemic. While the survey contained information regarding 9 sections, only questions from sections 1, 2, 5, and 9 were considered for this report. Questions in each section were presented in a random order to the participants, but the order of the content sections remained the same.

To mitigate historical confounds, questions about the 2022 election, the capitol riots, and COVID-19 vaccinations were included. However, for the purpose of this paper, those question results will not be analyzed or presented. Besides the consent forms, participants were allowed to answer questions as they saw fit: all information was voluntarily given without needing to be answered to move forward in the survey. Exploring emotional and mental health required questions such as "I feel Worried" and "I feel Happy" as counterbalanced and reverse coded opposites. Most questions were on a 1 to 5 Likert rating scale from "Strongly Agree" to "Strongly Disagree". Some were "Yes or No" questions for simplicity regarding whether or not technology helped them connect.

This survey was distributed twice: once in the Fall of 2022 and again in the Spring of 2023. If they so choose, participants were able to indicate if they would participate in a "re-test"

survey in the Spring of 2023 before exiting the survey, to create a longitudinal cohort. The Spring 2023 cohort served as a non-equivalent control group for the Fall 2022 cohort and the longitudinal participants. For the purposes of this report, only the data from the Fall 2022 cohort will be analyzed and reported.

For data analysis, frequency counts and percentages were used to determine the perceived impact of technology use, mental well-being, social connection, and emotional distress. For Social Connection and Mental and Emotional Well-being questions, score composites were created to synthesize data for descriptive analysis. Composites were created by adding the questions directly asking about each aspect of social connection together. As each score had a total of 5 options, each given a number, the highest possible score a participant could indicate was the number of questions multiplied by 5 (Nquestions * 5 = highest possible score) while the lowest possible score was the number of questions multiplied by 1 (Nquestions * 1 = lowest possible score). Means were calculated from participants' composite scores.

Procedure

Participants signed up for this study through SONA and were granted access to the survey through the SONA study portal. They then read the consent form and, upon signing, were asked questions regarding their demographics and living situation. Then, participants were presented with questions about their emotional and mental health, lifestyle (such as "how many hours a week do you work?"), physical health, and school and technology preferences and perceived performance. Participants were then asked questions on key historical events such as the capitol riots and 2022 election. Finally, participants were provided with questions regarding personal stressors and COVID-19 vaccinations. Participants were not required to answer any question besides the consent. Once done with the survey, participants were provided with contact

information and the debriefing form. The survey took at most an hour for participants to complete.

Results

Social Connection

Composite scores for Isolation, Loneliness, and Lack of Support (see Table 2) indicate that the mean for each is higher than the average score. Lack of Support, specifically, had a composite mean score of 21.8 (SD = 4.56) where the lower the score (min = 7, max = 35) the better the perceived support. A perfectly supported individual would score a 7, where the composite mean was more than 3 times that.

There was no significant difference between ratings for Isolation, Loneliness, and Lack of Support for male and female respondents. As seen in Figure 1, only 32.9% of participants indicated that they were able to build an adequate social network during the pandemic. When asked if they currently felt connected to others, 57.6% (n = 152) of respondents indicated that they did.

Table 3 illustrates the rate of social interaction and quantity of friends before and after the pandemic. Regarding the number of friends pre-and-post pandemic, 33.7% of respondents indicated having fewer friends after the pandemic. Additionally, 42.4% (n = 112) of respondents agreed "I have more contact with my friends due to online communication", and 40.5% (n = 74) disagreed with the statement "I have a closer social network after/during the pandemic/quarantine".

Mental and Emotional Health

As seen in Figure 2, participants indicated the response scores for self-reported feelings of Depression (M = 2.73, SD = 1.23). Participants rated higher in worry than the absolute

average of 2.5 (M = 3.44, SD = 1.14), and the same result for anxiety (M = 3.6, SD = 1.2) was also noted. Pessimism was rated barely higher than the absolute average (M = 2.7, SD = 1.1). All means were out of a possible score of 5. More than a quarter (28.7%) of respondents indicated they felt incredibly isolated, while 63.7% of respondents indicated they currently suffer from anxiety, and 44.3% indicated that they were in need of extra support right now.

Additionally, 54.1% of respondents indicated they wanted to seek a counselor for mental health reasons during the Fall of 2020, but only 14% indicated they saw a mental health professional at that time. For the Spring 2021 semester, 44.7% responded positively to "I considered seeing a counselor", but only 15.6% of respondents were actually seen by a counselor in the Spring of 2021.

Technology Use

Technology use was examined from both the modalities and technologies used to connect with others and the perceived emotional valence for adding new technologies to one's life. As seen in Table 4, only 18.2% of participants indicated they had used chat rooms (i.e., Omegle) during the pandemic, while 13.2% had used dating apps (such as Tinder) to connect with others.

Regarding feelings surrounding adopting new technologies, 48.8% reported feeling forced to connect online, and 46.6% reported feeling forced to learn new technologies. Figure 3 illustrates the emotional valence regarding the adoption of new technologies. Participants indicated that technology was both stressful and exciting/enjoyable to adopt.

When asked whether online social connections were enough for them, 58.3% of participants indicated that online connections were not enough. However, 58.7% of participants responded that online connections were beneficial in some way.

Discussion

When the world was forced to go remote during the quarantine, many in-person activities were forced to move online. This lack of choice regarding how one conducts their business (both literal and metaphorical) infringes on one's autonomy (Dimmock et al., 2022) and may cause an individual to feel stressed or ill at ease. The findings of this research corroborate the feelings of stress (Figure 3) indicated by participants in addition to the perception of being forced into adopting new technologies (Table 4). SDT posits that without autonomy, well-being may decline. This, too, is corroborated by the findings of this study (Figure 2). As adopting new technology creates a new challenge, and the removal of choice adds another emotional layer to overcome, this research provides support for technology use being a perceived source of stress for college students during the pandemic, in addition to financial and social stressors (Bijulakshmi et al., 2020).

The emotional distress indicated by individuals may not be solely caused by the lack of autonomy. Social isolation has been linked to mental health crises and emotional distress in young adults (Cudjoe & Kotwal, 2020), while severe instances during the period of Intimacy vs. Isolation may have negative impacts into the mid-to-late 30s (Whitbourne et al., 2009). The findings of high means for Isolation and Loneliness are consistent with previous research regarding the cohorts during COVID-19 (Bijulakshmi et al., 2020; Johnston & Oliva, 2021; Solway, 2021; van Loon et al., 2021). Being kept away from friends and family with the threat of passing a deadly disease to another is a big mental load to carry.

Technology was the main form of contact with others during the pandemic. While social media was not inquired about in this survey, it has been associated with increased and decreased levels of reported loneliness (Käcko et al., 2024). The current study found that less than 20% of

respondents used some form of chat room or dating application, respectively, to connect with others online. Future research could examine the use of social media (such as X, Instagram, or TikTok) as a source of connection to the outside world as social media use during the pandemic increased both for information seeking (Bashar et al., 2022) and social connection (Nooraie et al., 2021). Previous research has found that the more time adolescents spent texting and video calling one another, the more connected they felt to each other (Clark et al., 2018; James et al., 2023). This supports the current study, which found that over half of respondents indicated that online interactions fostered feelings of community and social connection.

A key limitation of this study was not collecting data during the COVID-19 semesters themselves, as recalling the experiences is not as reliable as current experiences. However, the future work will examine if there was a difference between the fall 2022 semester and those following. As this data was collected from one cohort in the fall of 2022, future research will seek to understand if there was a difference between the cohort discussed in this paper in two ways. The first will be a longitudinal comparison group with individuals who indicated they would be willing to retake the same survey. This will be used to determine if the data show a change in mental and emotional well-being, physical health, and technology use between the spring 2022 and spring 2023 for the same individuals. The second is a non-equivalent control group of new participants from a spring 2023 study. This data has been collected but not yet analyzed.

One limitation of this study is the absence of collecting ethnicity and race demographic data. As previous research has indicated a racial disparity in the economic and health impacts on minority groups, specifically Black and Latinx individuals, (Anyane-Yeboa et al., 2020; Haro-Ramos et al., 2023) the lack of data collection leaves a hole in understanding COVID-19's

impact on individuals. Future research could look at racial discrepancies in mental, physical, and emotional well-being as the COVID-19 pandemic impacted ethnicity differently (Zhang et al., 2023). Furthermore, socioeconomic status and access to healthcare have been linked to ethnic trends (Aron & Muellbauer, 2022) and as the pandemic impacted both physical and economic health, results might vary with racial data. Furthermore, minority individuals have had historically less access to technology (Molnar, 2023), which further presses for more extensive research to be done.

The social isolation caused by the COVID-19 lockdowns wreaked havoc on the social development of multiple generations forced to meet and connect online. SDT examines this lack of autonomy and describes a decline in emotional well-being with an absence of choice in one's surroundings, consistent with the current study and previous research regarding the mental and emotional health of those during the pandemic. Theories of development examine the lack of social connection as a key developmental phase stunted by an inability to connect and interact as normal, especially in critical places of idea exchange, such as college. The adoption of technology used in both the educational and personal setting was no longer a choice for many, forced into online education against their will. The current study found that individuals reported the adoption of new technology as both stressful and exciting. Additionally, isolation and loneliness were recorded. Future research can examine the impact on those with different ethnic and racial identities as they were disproportionately affected by the pandemic.

References

- American Psychological Association. (n.d.). Autonomy. In *APA dictionary of psychology*. Retrieved February 10, 2024, from https://dictionary.apa.org/autonomy.
- American Psychological Association. (n.d.). Social isolation. In *APA dictionary of psychology*. Retrieved April 19, 2024, from https://dictionary.apa.org/social-isolation.

American Psychological Association. (n.d.). Loneliness. In *APA dictionary of psychology*.
Retrieved April 19, 2024, from https://dictionary.apa.org/loneliness.
Anyane-Yeboa, A., Sato, T., & Sakuraba, A. (2020). Racial disparities in COVID-19 deaths reveal harsh truths about structural inequality in America. Journal of Internal Medicine, 288(4), 479–480. https://doi.org/10.1111/joim.13117

- Aron, J., & Muellbauer, J. (2022). Excess Mortality Versus COVID-19 Death Rates: A Spatial Analysis of Socioeconomic Disparities and Political Allegiance Across U.S. States. *The Review of Income and Wealth*, 68(2), 348–392. https://doi.org/10.1111/roiw.12570
 Bashar, M. A., Nayak, R., & Balasubramaniam, T. (2022). Deep learning based topic and sentiment analysis: COVID19 information seeking on social media. Social Network Analysis and Mining, 12(1), 90–90. https://doi.org/10.1007/s13278-022-00917-5
- Bijulakshmi, P., Ramasubramanian, V., Mathumathi, Rajendhiran, G., & Ramasubramanian, C. (2020). Psychological Impact of COVID 19 on the Amount of Perceived Stress among College Students Studying across Various Streams in India during the Period of Lockdown. *Journal of Evolution of Medical and Dental Sciences*, 9(39), 2889–2893. https://doi.org/10.14260/jemds/2020/632

- Cacioppo, J. T., & Cacioppo, S. (2014). Social Relationships and Health: The Toxic Effects of Perceived Social Isolation. *Social and Personality Psychology Compass*, 8(2), 58–72. https://doi.org/10.1111/spc3.12087
- Clark, J. L., Algoe, S. B., & Green, M. C. (2018). Social Network Sites and Well-Being: The Role of Social Connection. *Current Directions in Psychological Science: A Journal of the American Psychological Society*, 27(1), 32–37. https://doi.org/10.1177/0963721417730833
- Cudjoe, T. K. M., & Kotwal, A. A. (2020). "Social Distancing" Amid a Crisis in Social Isolation and Loneliness. *Journal of the American Geriatrics Society (JAGS)*, 68(6), E27–E29. https://doi.org/10.1111/jgs.16527
- Dimmock, J., Krause, A. E., Rebar, A., & Jackson, B. (2022). Relationships between social interactions, basic psychological needs, and wellbeing during the COVID-19 pandemic. *Psychology & Health*, 37(4), 457–469. https://doiorg.elib.uah.edu/10.1080/08870446.2021.1921178
- Erikson, E. H. (1963). Childhood and society (2nd ed.). New York: Norton
- Freeman, S., Marston, H. R., Musselwhite, C., Olynick, J., Genoe, R., Kulczycki, C., & Xiong, B. (2020). Intergenerational connections through technology: Insights from the Technology Use in Later Life multi-site study. *Innovation in Aging*, *4*(Supplement_1), 928–929. https://doi.org/10.1093/geroni/igaa057.3405
 Haro-Ramos, A. Y., Brown, T. T., Deardorff, J., Aguilera, A., Pollack Porter, K. M., & Rodriguez, H. P. (2023). Frontline work and racial disparities in social and economic pandemic stressors during the first COVID-19 surge. Health Services Research, 58(4), 186–197. https://doi.org/10.1111/1475-6773.14136

Hawthorne, G. (2008). Perceived social isolation in a community sample: its prevalence and correlates with aspects of peoples' lives. *Social Psychiatry and Psychiatric Epidemiology*, 43(2), 140–150. https://doi.org/10.1007/s00127-007-0279-8

- James, K. M., Silk, J. S., Scott, L. N., Hutchinson, E. A., Wang, S., Sequeira, S. L., Lu, C., Oppenheimer, C., & Ladouceur, C. D. (2023). Peer Connectedness and Social Technology Use During COVID-19 Lockdown. *Research on Child and Adolescent Psychopathology*, 51(7), 937–948. https://doi.org/10.1007/s10802-023-01040-5
- Johnston, K., & Oliva, J. (2021). Covid-19 lockdown landslides: The negative impact of subsequent lockdowns on loneliness, wellbeing, and mental health of Australians. *Asia Pacific Journal of Health Management*, 16(4), 125–133. https://doi.org/10.24083/apjhm.v16i4.855
- Käcko, E., Hemberg, J., & Nyman-Kurkiala, P. (2024). The double-sided coin of loneliness and social media–young adults' experiences and perceptions. *International Journal of Adolescence and Youth*, 29(1). https://doi.org/10.1080/02673843.2024.2306889
- Kong, F., & You, X. (2013). Loneliness and Self-Esteem as Mediators Between Social Support and Life Satisfaction in Late Adolescence. *Social Indicators Research*, 110(1), 271–279. https://doi.org/10.1007/s11205-011-9930-6
- Laursen, B., & Hartl, A. C. (2013). Understanding loneliness during adolescence: Developmental changes that increase the risk of perceived social isolation. *Journal of Adolescence* (London, England.), 36(6), 1261–1268.

Molnar, P. (2023). Digital border technologies, techno-racism and logics of exclusion. *International Migration*, *61*(5), 307–312. https://doi.org/10.1111/imig.13187

Nooraie, R. Y., Warren, K., Juckett, L. A., Cao, Q. A., Bunger, A. C., & Patak-Pietrafesa, M. A. (2021). Individual- And group-level network-building interventions to address social isolation and loneliness: A scoping review with implications for COVID19. PloS One, 16(6), e0253734–e0253734. https://doi.org/10.1371/journal.pone.0253734

Pavlova, M. K., Haase, C. M., & Silbereisen, R. K. (2011). Early, on-time, and late behavioral autonomy in adolescence: Psychosocial correlates in young and middle adulthood. *Journal of Adolescence (London, England.)*, 34(2), 361–370. https://doi.org/10.1016/j.adolescence.2010.04.002

- Solway, E. (2021). Poll Findings on Social Connection and Technology Use During the COVID-19 Pandemic. *Innovation in Aging*, 5(Supplement_1), 97–97. https://doi.org/10.1093/geroni/igab046.367
- Townsend, L., Zippay, A., Caler, K., & Forenza, B. (2016). Technology and Opportunity: People with Serious Mental Illness and Social Connection. *Journal of the Society for Social Work and Research*, 7(2), 371–393. https://doi.org/10.1086/686882
 van Loon, A. W. G., Creemers, H. E., Vogelaar, S., Miers, A. C., Saab, N., Westenberg, P. M., & Asscher, J. J. (2021). Prepandemic Risk Factors of COVID-19-Related Concerns in Adolescents During the COVID-19 Pandemic. *Journal of Research on Adolescence*, 31(3), 531–545. https://doi.org/10.1111/jora.12651
- World Health Organization. (n.d.). Covid-19 data | WHO covid-19 dashboard. World Health Organization. https://data.who.int/dashboards/covid19/data
- Whitbourne, S. K., Sneed, J. R., & Sayer, A. (2009). Psychosocial Development From College Through Midlife: A 34-Year Sequential Study. Developmental Psychology, 45(5), 1328– 1340. https://doi.org/10.1037/a0016550

- Wu, Y.-J., Outley, C., Matarrita-Cascante, D., & Murphrey, T. P. (2016). A Systematic Review of Recent Research on Adolescent Social Connectedness and Mental Health with Internet Technology Use. *Adolescent Research Review*, 1(2), 153–162. https://doi.org/10.1007/s40894-015-0013-9
- Zhang, J., Dong, X., Liu, G., & Gao, Y. (2023). Risk and Protective Factors for COVID-19
 Morbidity, Severity, and Mortality. *Clinical Reviews in Allergy & Immunology*, 64(1), 90–107. https://doi.org/10.1007/s12016-022-08921-5

Tables and Figures

Table 1

Number of Survey Questions by Topic

Торіс	Ν	
Demographics/Housing	17	
Emotional Health	64	
Lifestyle	6	
Eating habits/Exercise	14	
School & Technology	54	
Capitol Riots	7	
2022 Election	11	
Stressors	10	
COVID-19/Vaccinations	48	

Total = 231

Table 2

Composite	Range	М	SD	<i>M</i> -male	<i>M</i> -female
Isolation	6-30	19.43	4.77	18.58	19.88
Loneliness	3-15	8.63	2.94	9.39	8.14
Lack of Support	7-35	21.83	4.56	22.44	21.44
Lack of Support	7-35	21.83	4.56	22.44	21.

Means and SD of Social Connection Composites

Note. The composite scores are made up of a different number of questions, thus the mean is out of a different highest possible score. The lower the score, the less the participant indicated as experiencing the aspect of social disconnect.

Table 3

Social Interaction after the Pandemic

Friendship Post-pandemic	Ν	%
Fewer Friends	89	33.7
Less Contact w/Friends	93	35.2
More Contact w/Friends	65	24.6

Note. A third of respondents indicated that they had fewer friends after the pandemic than before, and around a quarter of respondents indicated they had more contact with their friends than before the pandemic.

Table 4

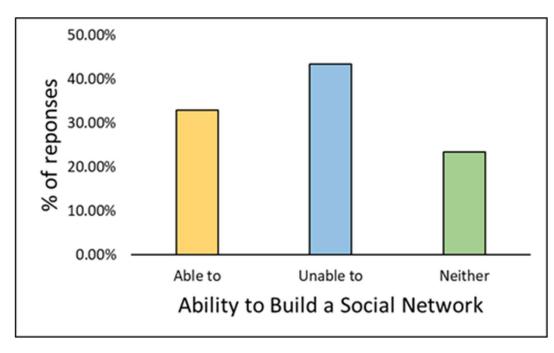
Technology Use

Behaviors/Perceptions	Ν	%
Used Chat Rooms	48	18.2
Used Dating Apps	35	13.2
Forced to Connect Online	129	48.8
Forced to Learn Tech	123	46.6

Note. Less than 20% of participants indicated that they used chat rooms or dating sites to connect to others during the pandemic, but nearly half of all respondents felt forced to use more technology.

Figure 1

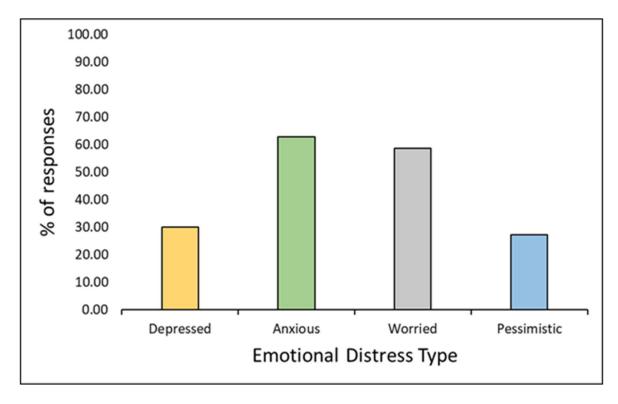
Perceived Ability to Build a Social Network



Note. Participants indicated that there was a perceived inability to create a social network during COVID-19.

Figure 2

Emotional Distress Ratings

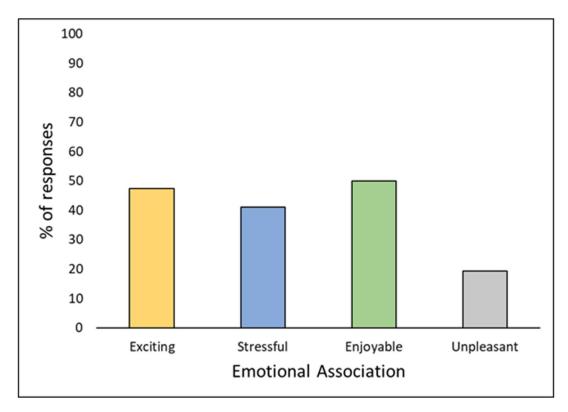


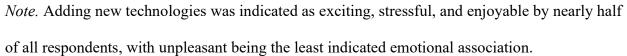
Note. Participants indicated that they were anxious and worried more than depressed or

pessimistic, though not at a statistically significant different rate.

Figure 3

Perceptions of Adding New Technologies





Appendix

Demographics:

- 1. Age?
- 2. Gender:
 - a. Male
 - b. Female
 - c. Trans
 - d. Non-binary
 - e. Other
- 3. What is your major?
- 4. What is your GPA?
- 5. Credit hours completed?
- 6. School year identified as (freshman, sophomore, junior, senior, second bachelor, graduate student?
- 7. Are you in the honors college?
- 8. Are you living on campus? (Y/N -- if No, skip to Q9)
 - a. If yes, Which dorm/location?
 - .Bevil
 - i.CCH
 - ii.CVA
 - iii.CVO
 - iv.FFH
 - v.NCH
 - vi.SCH vii.A sorority/fraternity house
 - b. Sense of community in dorms (if choose options i- vii for Q 1a)
 - 1. I feel like I have a community on campus
 - 2. I feel I have a sense of community in my dorm
 - 3. I feel I do not have a community on-campus
 - 4. I feel I do not have a sense of community in the dorms
 - 5. I had an easy time finding a community on campus
 - 6. I had a hard time finding a community on campus
- 9. Are you living off campus? (Y/N)
 - If yes, what best describes your living environment
 - 1. I live alone
 - 2. In a communal house/apartment with friends
 - 3. Living with my parents or other family members
 - a. Sense of community while living off campus
 - i) Although I live off campus, I feel like I have a community on campus
 - ii) Although I live off campus, I feel I do not have a community on-campus

iii) Although I live off campus, I had an easy time finding a community on campus

iv) Because I live off campus, I have had a hard time finding a community on campus

10. Are you a club member at UAH? Which one(s)?

- . How frequently does the club meet--weekly, biweekly, or monthly
- a. I attend as frequently as the club meets
- b. My club meets in-person
- c. My club meets online
- d. I enjoy going to club meetings
- e. I feel socially supported when I go to club meetings
- f. I dread going to club meetings
 - i. Always
 - ii. Occasionally
 - iii. Sometimes
 - iv. Never
- g. I'm excited to go to club meetings
 - i. Always
 - ii. Occasionally
 - iii. Sometimes
 - iv. Never

11. Are you a member of a sorority or fraternity? Which one?

(If response is yes to Q11 the following questions would appear)

- a. My sorority/fraternity has helped me feel connected at UAH
- b. My sorority/fraternity planned activities that have helped me make friends
- c. My sorority/fraternity planned enough activities to help me feel connected to others
- d. My sorority/fraternity did not plan enough activities to help me feel connected to others
- e. I have made friends through my sorority/fraternity
- f. I have made good friends with members of my sorority/fraternity
- g. I have a broader social network because of my sorority/fraternity
- h. I have a broader friend group because of my sorority/fraternity
- i. I do not have a broader friend group because of my sorority/fraternity

Emotional Health (Likert ratings: Strongly Disagree to Strongly Agree)

- 1. My living situation has benefited my emotional state.
- 2. I have suffered from anxiety in the past.
- 3. I currently suffer from anxiety.
- 4. I have experienced depression in the past.
- 5. I am currently depressed.
- 6. I am hopeful for what the future may bring.
- 7. I feel overwhelmed right now.
- 8. I feel closer to my family than I have in the past.
- 9. I feel incredibly isolated these days.
- 10. I consider myself a happy person.
- 11. My friends give me a lot of emotional support.
- 12. My friends do not give me enough emotional support
- 13. I feel I do not have any friends
- 14. I feel I have fulfilling friendships
- 15. My home life is good.

- 16. My relationship with my parents is good.
- 17. I have fought more with my parents lately.
- 18. I feel incredibly lonely.
- 19. I am currently Hopeful
- 20. I am currently Happy
- 21. I am currently Sad
- 22. I am currently Depressed
- 23. I am currently Anxious
- 24. I am currently Peaceful
- 25. I am currently Worried
- 26. I am currently Optimistic
- 27. I am currently Pessimistic
- 28. I currently feel Isolated
- 29. I currently feel Connected to others
- 30. I feel lonely most of the time (Likert)
- 31. I rarely feel lonely (Likert)
- 32. I feel supported by my friends (Likert)
- 33. I feel supported by my family (Likert)
- 34. I do not feel supported by my friends (LIkert)
- 35. I do not feel supported by my family (LIkert)
- 36. I believe things will get better.
- 37. I believe things will not get better.
- 38. I believe that a sense of normalcy will return soon.
- 39. My emotional state has made me consider seeing a counselor
- 40. I considered seeing a counselor during the Spring 2021 semester.
- 41. I saw a counselor during the Spring 2021 semester.
- 42. I considered seeing a counselor during the Fall 2020 semester.
- 43. I saw a counselor during the Fall 2020 semester.
- 44. I have access to mental health care if I want/need it.
- 45. I need extra emotional support right now.
- 46. I do not need extra emotional support right now.
- 47. I am satisfied with my social support.
- 48. I am dissatisfied with my social support.
- 49. I have relied on my family more for emotional support
- 50. I have relied on family less for emotional support
- 51. I feel closer to my friends
- 52. I feel more isolated from my friends
- 53. I feel more isolated from my family
- 54. I feel less isolated from my friends
- 55. I feel less isolated from my family.
- 56. I despair about the future
- 57. I see the good in the world
- 58. My faith in humanity has increased/been restored
- 59. I see more bad in the world than good
- 60. I see more good in the world than bad
- 61. I view people as inherently good

- 62. I view people as inherently bad
- 63. I view people as neither inherently bad nor good

Lifestyle

- 1. Do you have a job?
 - a. If so, how many hours a week?
 - b. I have to travel for my job.
 - c. I work virtually
 - d. I consistently wear a mask during work.
 - e. I am required to wear a mask during work.
 - f. I am at an increased risk of contracting COVID while I work.
 - g. I am worried about contracting COVID while at work.
 - h. I am not concerned about contracting COVID.
 - i. I am less concerned about contracting COVID now than I was a year ago.
 - j. I am now vaccinated and am less concerned about contracting COVID.

2. Eating habits

- a. My eating habits have become healthier in the last year.
- b. I am pleased with my eating habits
- c. I eat enough
- d. I eat too much
- e. I eat balanced diet
- f. I do not eat the way I want to eat
- g. I have an easy time deciding what to eat
- h. I find myself having a hard time eating
- i. I eat at consistent times
- 3. Working out
 - a. I have exercised more in the last year than I have previously
 - b. I exercise consistently
 - c. I want to exercise more
 - d. I feel like I exercise enough
 - e. I would describe my workout habits as:
 - i. Consistent
 - ii. Varied
 - iii. Occasional
 - iv. Rarely
 - v. Never
- 4. Study places
 - a. I have an easy time doing my school assignments/working
 - b. I work better in the quiet
 - c. I work better online
 - d. I work better with no computer
 - e. I have a harder time working when using a computer
 - f. I have an easier time taking notes on an electronic device (such as an iPad/tablet) than paper/pen
 - g. I take better notes when I use paper products
 - h. I feel more comfortable taking notes on paper products

i. I feel more comfortable taking notes on an electronic device

Technology

- 1. Online school comfort level (scale of 1-5)
- 2. Do you prefer traditional (in-person), hybrid (in-person and online), or online-only classes? (Pick one)
- 3. Do you think that online connections were beneficial to you (Y/N)
- 4. I have a greater understanding of technology now than before the pandemic
- 5. I feel I have been forced to learn about more technological applications
- 6. I feel I have been forced to learn about more technological methods of connection
- 7. Were online connections enough for you? (Y/N)
- 8. I was fatigued with online classes that met over Zoom
- 9. I was fatigued with online classes that did not meet over Zoom
- 10. I preferred classes that had Zoom meetings over those that did not (Y/N)
- 11. I understand material presented in the classroom better than online lectures/videos
- 12. I understand material presented online via lectures/videos than in-person
- 13. I take more time understanding online material than in-person lectures
- 14. I take less time understanding online course material than in-person material
- 15. The need to learn new technological methods of communication is stressful.
- 16. The need to learn new technologies is exciting
- 17. I do not enjoy adding new technologies to my workplace (and/or school)
- 18. I enjoy adding new technologies to work (and/or school)
- 19. I have used dating applications (such as Tinder) to build friendships during the pandemic
- 20. I have used online chat rooms to find friends during the pandemic

School

- 1. I feel I am doing as well academically as I could be
- 2. My grades are satisfactory to me
- 3. My grades are satisfactory to my parents
- 4. I feel disappointed in my academic performance
- 5. I am trying as hard as I can in my studies
- 6. I have given up trying in my studies
- 7. I feel defeated with my academic performance
- 8. I am proud of my academic performance
- 9. I need extra academic support right now
- 10. I do not need extra academic support right now
- 11. I am having difficulty concentrating on school
- 12. I am having an easier time concentrating on school
- 13. I have seen an increase in my ability to multitask
- 14. I have seen a decrease in my ability to multitask
- 15. I am struggling with time management
- 16. I am better able to manage my time with online classes
- 17. My classes feel easier in online format
- 18. My classes feel harder in online format
- 19. My classes feel easier in person
- 20. My classes feel easier when in a hybrid format

- 21. My classes feel harder in person
- 22. My professors inability to understand the technology makes online classes harder
- 23. My professors inability to understand technology does not make online classes harder
- 24. My professors show more care in online classes
- 25. My professors show less care in online classes

COVID Vaccine

- 1. I have worried about someone I know contracting COVID-19.
- 2. I have worried about contracting COVID-19 myself.
- 3. I am worried about the COVID-19 vaccine
- 4. I am less worried because of the COVID-19 vaccine
- 5. I am more worried because of the COVID-19 vaccine
- 6. I am vaccinated
- 7. I want to get vaccinated
- 8. I will not get vaccinated
- 9. I have plans to get vaccinated
- 10. My family is vaccinated
- 11. My family will not get vaccinated
- 12. My friends are vaccinated
- 13. My friends want to get vaccinated
- 14. My friends will not get vaccinated
- 15. I am comfortable getting vaccinated
- 16. I am cautious about getting vaccinated
- 17. My family is comfortable getting vaccinated
- 18. My friends are cautious about getting vaccinated
- 19. My friends are supportive of getting vaccinated
- 20. My family is not supportive of me getting vaccinated
- 21. My family members have been stressed about the pandemic
- 22. My friends have been worried about the pandemic
- 23. My family has experienced an increase in financial stress during the pandemic (last 18 months)
- 24. My family has experienced an increase in emotional stress during the pandemic (last 18 months)
- 25. My family has experienced an increase in mental stress during the past 18 months
- 26. My friends are not worried about the pandemic
- 27. My family is not stressed about the pandemic
- 28. I had a closer social support network before the pandemic/quarantine
- 29. I had less social support before the pandemic
- 30. I have a closer social network after/during the pandemic/quarantine
- 31. I had less social support before the pandemic
- 32. I had more family support before the pandemic
- 33. I had less family support before the pandemic
- 34. I had more friends before the pandemic/quarantine
- 35. I have more friends after/during the pandemic/quarantine
- 36. I have less contact with my friends post-pandemic than I did before
- 37. I am in more contact with my friends post-pandemic than before

- 38. I have more friends now than before COVID-19
- 39. I have fewer friends now than I did before COVID-19
- 40. I have more contact with my friends due to online communication
- 41. I have more time with friends due to living on campus together
- 42. I have more time with my friends because they are my roommates
- 43. I have more friends due to college connections and activities, if so how:
 - a. Roommates
 - b. Residence hall activities
 - c. Meeting friends in residence halls
 - d. On-campus online programs
- 1. My roommates have been sources of social support (Y/N)
- 2. My roommates have not been sources of social support (Y/N)
- 3. On-campus activities have been a source of social support
- 4. Online campus activities have been a source of social support

Capitol Riots

- 1. The Capitol Riots were concerning to me
- 2. The Capitol Riots caused an increase in stress levels
- 3. The political climate did not cause me any stress
- 4. The political unrest caused an increase in my distractibility
- 5. The political unrest created distress among my friends
- 6. The political unrest created distress within my family
- 7. The political unrest was relieving to me

2020 Election (Y/N)

- 1. I felt stressed about the 2020 election
- 2. The 2020 election positively impacted my mental health
- 3. The 2020 election negatively impacted my emotional health
- 4. The 2020 election caused unrest with my friends
- 5. The 2020 election created connections with my friends
- 6. The 2020 election positively affected my relationship with my parents
- 7. The 2020 election negatively impacted my relationship with my parents
- 8. The 2020 election affected my friendships negatively
- 9. The 2020 election affected my friendships positively
- 10. The 2020 election created connection with my family
- 11. The 2020 election created tension with my family

Stressors

- 1. I am stressed about finances
- 2. I am not stressed about finances
- 3. Work increases my stress levels
- 4. Work decreases my stress levels
- 5. I am stressed about the hours I work
- 6. I am happy with the hours I work
- 7. I am worried about the risk of getting COVID-19 from work
- 8. I am not worried about getting COVID-19 from work

9. I was able to build an adequate social network during the pandemic10. I was unable to build an adequate social network during the pandemic