

Life During COVID-19 Among Young Adults in Higher Education

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Abstract

Objective: The goal of this study is to examine young adults' lives during COVID-19 with an emphasis on those enrolled in their senior year of college.

Method: The sample consisted of 285 students at a large public university in the western United States and their peers at other stages of education. Participants completed an online survey to report their well-being during the COVID-19 pandemic. Descriptive information was obtained on exposure to the news on COVID-19, social connections exposed to or who contracted COVID-19, quarantining alone, perceived social isolation, social media use, time spent talking about COVID-19, social interaction and about resilience factors. We also tested hypotheses regarding these measures and their associations with feelings of vulnerability and predictors of emotional distress

Results: Over 80% of participants practiced social distancing and wore masks consistently. Although participants reported a moderate level of anxiety, certain depressive symptoms such as feeling no motivation or interest in doing things were relatively high, and almost half of the participants disagreed that their life was close to ideal. Participants who had greater exposure to COVID-19-related news ($p < .05$), talked more with others about the virus ($p < .05$), or had more exposed social connections ($p < .01$) showed higher perceived vulnerability, while higher optimism about the virus was associated with lower perceived vulnerability ($p < .05$). In terms of emotional distress, participants who had more exposure to COVID-19 related news ($p < .01$), reported more social media use ($p < .01$), talked about the virus more often ($p < .01$), or had higher perceived social isolation ($p < .01$) reported higher symptoms of emotional distress. Those with more social interactions showed lower emotional distress ($p < .05$). Having a higher adherence to a daily routine ($p < .01$) or spending more time outdoors ($p < .01$) were also associated with lower emotional distress. In addition, several resilience factors predicted lower emotional distress, specifically being more optimistic ($p < .01$), more spiritual ($p < .05$), more religious ($p < .05$), higher self-efficacy ($p < .01$) and active coping ($p < .05$). When looking at gender differences, females were more likely to be emotionally distressed than males ($p < .01$), and females reported less social interaction than males ($p < .01$), whereas males reported higher optimism than females ($p < .01$).

Implications: It is important to conduct further studies to fully understand the needs of the students in these times of unprecedented global stress in order to help students effectively cope. Furthermore, policymakers and administrators in educational institutions should take social, mental and physical well-being of students into account when making decisions regarding the pandemic and the effects on campus.

Coronavirus (COVID-19) was first identified in Wuhan, China as a novel virus caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). After its discovery in December of 2019, the virus has since spread globally and caused an ongoing pandemic, which has resulted in over 18 million total cases globally by the end of July (CSSE, 2020). According to the Centers for Disease Control and Prevention (CDC), there were over four million total cases and over 150 thousand total deaths in the United States by the end of July (Centers for Disease Control and Prevention, 2020). The number of cases has continued to increase exponentially since then, and as of this writing, they are not yet under control in most parts of the world. In response to these rising reports, the U.S. implemented official stay-at-home orders on March 19, 2020, which requires individuals to restrain from engaging in any nonessential activity, allowing leave only for permitted work. Social distancing through the stay-at-home orders allows for a flattening of the curve that if executed properly would reduce the number of cases and allow for an adequate ratio of healthcare services to patients.

These guidelines suddenly and dramatically changed many aspects of life. For example, the stay-at-home orders led to the shutdown of numerous businesses and a spike in the unemployment rate to 14.7% in April (Duffin, 2020). The orders also changed the operation of the education system. Forty-eight states closed in-person instruction for the rest of the 2019-2020 academic year, which affected the learning experience of about 50 million public school students (Ballotpedia, 2020). Most higher education institutions are now planning remote learning in the fall.

Besides the influences on society, COVID-19 also had an impact on people's mental health. A survey study on the general population in China during the COVID-19 pandemic found that among 56,679 participants, 31.6% of participants had anxiety symptoms, 29.2% of

participants had insomnia symptoms, 27.9% had depression symptoms, and 24.4% had acute stress symptoms (Shi et al., 2020). These findings suggest that the mental health burden in the general population in China due to the pandemic is considerable. Another study by Elran-Barak and Mozeikov (2020) studied Israeli people with chronic medical conditions during the pandemic and found that participants showed a significant decrease in vegetable consumption and physical activity. Participants also showed a significant increase in time using social media. In the U.S., Ettman et al. (2020) measured depressive symptom prevalence between March 31st and April 13th of 2020, early during the onset of COVID-19. They then compared it with national data from 2017 and 2018. The researchers found that since the onset of the COVID-19 pandemic, there was an increase in every category of depressive symptoms. They saw an 8% increase in mild depressive symptoms, a 9% increase in moderate depressive symptoms, a near 6% increase in moderately severe symptoms, and over a 4% increase in severe depressive symptoms. These findings raise concerns about how mental health will suffer across the U.S. and highlight the importance of understanding the factors contributing to higher or lower emotional distress.

Furthermore, the pandemic shows different degrees of impact on the well-being of various groups. For instance, by studying the mental health burden of the Chinese population during the outbreak, Huang and Zhao (2020) found that younger people reported a significantly higher prevalence of generalized anxiety symptoms and depressive symptoms compared to older people. They also found that, compared to other occupational groups, healthcare workers were more likely to have poor sleep quality (Huang & Zhao, 2020). On the other hand, Preis et al. (2020) found that during the COVID-19 pandemic, pregnant women experienced substantial anxiety, which suggests that the stress related to “preparation for birth during the pandemic and

worries about COVID-19 infection to self and the baby can elevate women's risk of experiencing moderate or severe anxiety" (Preis et al., 2020). The effects of COVID-19 on individual levels have become an emerging crisis.

Within the population, young people have been one of the groups most heavily impacted by the pandemic. As of July 25, 2020, individuals aged 18-34 make up 35.3% of cases in California (CDPH, 2020). Aside from having the highest percentage of cases, many young people were college students at the outset of the pandemic, who were faced with housing insecurity, unemployment, and a switch to remote learning almost overnight regardless of their resources. Additionally, some of these students who may have been attending an out-of-state or area school were quarantined alone and thus isolated from their friends and families. These unexpected changes are very likely to have impaired the well-being of young adults in college and their similar-aged peers. Cao et al. (2020) studied Chinese college students and found that economic effects, changes in daily life, and delays in academic activities were positively associated with anxiety symptoms during the COVID-19 pandemic. Huckins et al. (2020) also found that compared with prior academic terms, college students in the Winter 2020 quarter (the first academic term affected by COVID-19) were more sedentary, anxious, and depressed. They also found that students showed increased phone use and decreased physical activity. An online survey conducted by a college affordability group called Rise also found that 75% of students who responded to the survey were more anxious, depressed, or stressed amid the COVID-19 outbreak. (John, 2020). It is unclear what the long-term effects of the pandemic will be as the stay-at-home orders are continually extended. Therefore, further research is essential to determine the risk these individuals are at for psychological and health-related harm so that the appropriate resources can be allocated.

Some studies are published already examining the chronic effects of experiencing a pandemic. Garfin, Thompson, & Holman (2018) suggest that the chronic stress of the pandemic is a traumatic experience for many individuals due to the unprecedented nature of the virus. Heightened stress during and after other threatening events (such as exposure to war, earthquakes, childhood adversity) produce many adverse physiological symptoms including high blood pressure, increase in cortisol levels, and elevated heart rate. These symptoms are a cause for concern as the eventual toll on the body may lead to long-term health consequences. As explained by Patel (2018), chronic psychosocial stress may result in a “temporal cascade of multisystemic (neuroendocrine, immune, metabolic, and cardiovascular system) physiological dysregulations.” In literature on the Great Depression, factors such as unemployment, job insecurity, and financial uncertainty exacerbated these symptoms, and were also associated with more negative mental and physical health problems (Patel, 2018). This is especially relevant in the current context as the pandemic and resulting safety measures have led to a significant increase in unemployment and financial strain for the general public, including young adults.

Other studies have looked at predictors of people’s mental well-being during or after stressful events. Van der Velden et al. (2007) studied disaster victims and unaffected residents and found that pessimistic victims were more at risk for severe depressive symptoms than optimistic victims, and pessimistic participants were more at risk for severe anxiety symptoms than optimistic participants. It seems that optimism and related resilience factors such as self-efficacy matter to wellbeing, however, it is unclear whether these factors play a role in affecting people’s mental well-being during the COVID-19 pandemic, which is an unexpected worldwide disaster.

The sudden effects on students in college (and others of college age) raise questions about their feelings of vulnerability, especially given that the media in summer 2020 was portraying that demographic group as feeling invulnerable and actively spreading the virus. Statistics also showed that in California, people aged 18-34 had the most COVID-19 confirmed cases (CDPH, 2020). The sudden shut down of colleges and universities caused student distress and affected well-being. They are also the vulnerable group facing the pressure of unemployment and financial uncertainty because they are in transition from college to the workplace. As a result, it is important to study how the COVID-19 pandemic affects young adults' well-being.

Research on resilience focuses on resources that individuals or groups can possess that provide strength and protection in the face of threats (Dunkel Schetter & Dolbier, 2011; Masten, 2018). The effects of the acute and chronic stress of the virus may be mitigated in part by resilience resources such as a sense of control or mastery, a tendency to be optimistic, and by social support. Resilience resources have been studied as a capacity to manage stress in university students and a number of resources were shown to be beneficial in managing stress in two studies by UCLA researchers (Julian, et al., 2020). In the present study, we included measures of several resources hypothesized to reduce distress.

The Current Study

This study was conducted by 26 student researchers enrolled in an undergraduate research methods class at the University of California, Los Angeles (UCLA). The study sampled 285 young adults living in the United States who completed an online survey to report their experiences during the COVID-19 pandemic. The goal of this study was to examine young adults' lives during COVID-19 with an emphasis on those enrolled in their senior year of college at a large public university. More specifically, the current study hypotheses focused on feelings

of vulnerability and predictors of emotional distress. First, we hypothesized that perceived vulnerability to COVID-19 would be associated with more exposure to the news on COVID-19, more social connections exposed to or with COVID-19, more social media use, and talking more often about COVID-19. In addition, we predicted that lower perceived vulnerability would be associated with the resilience factors of higher optimism, active coping and self-efficacy. Furthermore, it was hypothesized that higher emotional distress would be associated with the same variables and, also, with fewer social interactions, quarantining alone, and greater perceived social isolation. Finally, it was hypothesized that lower emotional distress would be associated with the same resilience factors and also with higher spirituality and religiosity, maintaining a daily routine, higher amounts of daily exercise, more time spent outdoors, and seeking support from others concerning the virus.

Descriptive results are presented along with results of hypothesis testing to inform the public and policy makers about the context in which students and young adults of similar age found themselves early on in the COVID-19 epidemic.

Methods

Participants

The sample consists of 285 participants, ranging in age from 18 to 36 with a mean age of 21 (S.D. = 2.6). Of these, 71% (202) were female, 28% (79) were male, 1% (4) chose 'other' or did not provide their gender. In terms of race/ethnicity, 32% (92) identified as White or Caucasian Non-Hispanic, 25% (72) identified as Hispanic or Latino, 21% (59) as Asian or Asian American, 11% (32) as mixed race, 7% (19) as Middle Eastern, 3% (7) as Black or African

American, and the remainder were South Asian (3), and American Indian or Native American (1).

Slightly more than half or 54% (154) of the sample was composed of students currently enrolled in undergraduate studies at the institution where the study took place (UCLA), and 31% (88) of the sample was enrolled elsewhere in undergraduate studies, 12% (34) were not enrolled in school, and 3% (9) were enrolled in graduate school. Among those enrolled in undergraduate studies at the institution where the study took place, 63% (91) were seniors graduating in 2020, 28% (41) in 2021, 8% (11) were not graduating for two or more years, and the remainder (10) did not specify their graduating year or graduated in 2019 (1).

Design and Procedure

The design of the study is a cross-sectional observational design using online survey methods. Individuals between the ages of 18 and 36 were eligible to complete the study. The target group was college students at UCLA. The researchers used convenience sampling by identifying up to ten or more age-peers who were invited to participate. Student researchers emailed potential participants a standardized email invitation informing them that their responses would be anonymous and used for educational purposes, and that the survey would take 10-15 minutes in total to complete. The survey email invitation was as follows:

Welcome to our "Life During COVID 19" Survey! You are about to participate in an anonymous survey that will take about 10-15 minutes which is being conducted by a class in research methods (Psychology 151) under the supervision of Prof. Chris Dunkel Schetter. It is purely for educational purposes to help us learn about research methods. Your name will not be recorded anywhere. Answers will not be linked to you, and data will be combined for hundreds of participants to test our class hypotheses. The topics of the research are stress and wellbeing. Questions will ask about many different issues over the past month. Please take time to answer all the questions as completely as possible. If you have any questions or concerns, you may contact the Professor [email provided].
Thank you, Psychology 151 students

A standardized reminder email was sent three days later to all participants. The survey was open for a period of 6 days (May 13-18th). Out of the 349 participants invited to take part in the study, 285 participants completed 90% or more of the survey yielding a response rate of 82%.

Measures

The survey questions were programmed into Qualtrics survey software (Barnhoorn et al., 2015). The *Life During COVID-19 Survey* consisted of 95 items which covered topics such as behavior, stress, and negative affect during the present quarantining time, as well as health behaviors, coping mechanisms, and more.

Demographic Variables

Questions on participant age, gender, racial/ethnic status, education status, graduation year, and political party were included at the end of the survey.

Perceived Vulnerability

Perceived vulnerability was measured with a single item designed by the researchers. Participants were asked: *How likely do you think it is that you will contract the virus within the next year?* Participants responded on a 5-point scale: 1 (*not likely*), 2 (*somewhat likely*), 3 (*likely*), 4 (*very likely*), 5 (*almost certain*).

Measures of Well-being

Anxiety Symptoms. We measured anxiety symptoms with the combined responses to six mood descriptors of anxiety adapted from measures of Positive and Negative Affect Schedules (PANAS) (Watson et al., 1988). The PANAS negative affect measure (10 of the 20) was valid and reliable in previous studies (Crawford & Henry, 2004). In the present study, participants were asked to indicate the extent to which they had felt *tense, worried, calm, scared, nervous,*

and afraid in the past week. Participants responded to each item using a 5-point scale: 1 (*not at all*), 2 (*a little*), 3 (*moderately*), 4 (*quite a bit*), 5 (*extremely*). These items were averaged to obtain an index after reverse coding ‘calm.’ The internal alpha coefficient for this anxiety symptoms index was 0.89.

Depressive Symptoms. Depressive symptoms were measured by using items from the Center for Epidemiological Studies Depression’s (CES-D) scale (Radloff, 1977). CES-D is a reliable and valid test that successfully measures accurate depressive symptoms across a wide range of ages and diverse groups (Miller et al., 2008). Participants were asked to respond to five items: 1) *How often do you feel you have no motivation to do certain things you used to do before?* 2) *How often do you feel you have little to no interest or pleasure in doing things?* 3) *How often do you feel you have feelings of hopelessness?* 4) *How often do you have a poor appetite or have been overeating?* 5) *How often do you have trouble concentrating?* Participants responded to each item using a 5-point scale: 0 (*never*), 1 (*rarely*), 2 (*sometimes*), 3 (*often*), 4 (*always*). The items were averaged to create an index with an alpha coefficient of 0.80.

Perceived Stress

Perceived stress was measured by using the 4-Item brief Perceived Stress Scale (PSS-4) (Warttig et al., 2013). It is a reliable and valid measure based on the longer 12-item PSS with evidence showing that higher PSS-4 scores were associated with failure to quit smoking, more colds, and other outcomes (Warttig et al., 2013). The reliability of the 4-item PSS is acceptable, with Cronbach’s alpha being 0.79 (Karam et al., 2012). Karam et al. (2012) also showed convergent and concurrent validity with regards to the correlation of PSS with the EPDS, and quality of life measured by the Short Form 12-item Health Survey, SF-12, respectively. The four items are: *In the last month, how often have you (1) felt that you were unable to control the*

important things in your life? 2) felt confident about your ability to handle your personal problems? 3) felt that things were going your way? 4) felt difficulties were piling up so high that you could not overcome them? Questions are answered on a 5-point scale: 0 (*never*), 1 (*almost never*), 2 (*sometimes*), 3 (*fairly often*), 4 (*very often*). The second and third items were reverse coded to create a combined index of perceived stress with high values representing more stress. The alpha coefficient in this study was 0.79.

Life Satisfaction

Life satisfaction was measured with the combined responses of three items adapted from the Satisfaction With Life Scale, SWLS (Diener et al., 1985). Diener et al. (1985) noted high test-retest reliability on the original five-item scale across three studies. Participants in the present study were asked to respond to three items: 1) *In most ways, my life is close to ideal.* 2) *The conditions of my life are excellent.* 3) *I am satisfied with my life,* using a 5-point scale: 1 (*strongly disagree*), 2 (*disagree*), 3 (*neutral*), 4 (*agree*), 5 (*strongly agree*). The alpha coefficient in this study was 0.83.

Subjective Health

Subjective health was measured by one item that has been established to be a valid and reliable indicator of physical health (DeSalvo et al., 2016). It is: *In general, how would you rate your physical health at this time?* and it is answered on a 5-point scale: 1 (*poor*), 2 (*fair*), 3 (*good*), 4 (*very good*), 5 (*excellent*).

COVID-19 Behaviors

The researchers designed all COVID-19 behavior items as a team. Safety precautions was assessed with two items: 1) *To what extent are you currently practicing social distancing? Not at all, somewhat, very much, or completely,* and 2) *Do you wear facial masks every time you go*

outside where there are others around? No not at all, nearly none, half of the time, almost every time, or yfes every time.

We measured social interactions with two items. Participants were asked: 1) *Approximately, how many times a week do you engage in virtual interactions with one or more people via FaceTime, Zoom, or any other platform?* 2) *Approximately, how many times a week do you interact face to face (or in-person) with people outside where you are currently living?* Participants responded by selecting: *3 or fewer times a week, 4-5 times a week, 5-6 times a week, 6-7 times a week, or 7+ times a week.* These items were interrelated and were summed to form an index.

Social media use was measured with one item: *Approximately how much social media (Instagram, Twitter, Facebook, Snapchat, TikTok) time did you have per day over the past week?* Participants responded by selecting: *None, 1-2 hours, 3-4 hours, 5-6 hours, 7-8 hours, or 9+ hours.*

Actual social isolation was measured with one item: *How many people are you self-quarantining with (not including you)?* Participants responded by selecting: *None, 1, 2, or 3 or more.* Perceived social isolation was measured with two items: 1) *How often do you feel that you lack companionship now?* 2) *How often do you feel isolated from others now?* Participants responded to each item on a 4-point scale: 1 (*I often feel this way*), 2 (*I sometimes feel this way*), 3 (*I rarely feel this way*), 4 (*I never feel this way*).

Time spent talking about COVID-19 was measured with one item: *How often do you talk about the COVID-19 virus with others?* answered as *Less than one time per week, A few times a week, approximately once a day, 2 to 3 times per day, 4 to 5 times a day, or More than 5 times per day.*

Social connections exposed to COVID-19 was measured with two items: 1) *How many of your close social connections (i.e. family, friends, coworkers) have been exposed to COVID-19?* 2) *How many of your social connections have contracted the COVID-19 virus or likely had it whether tested or not?* Participants responded to each item by selecting: 0, 1, 2, 3, or 4 or more.

Receiving support from others was measured with one item: *I've been getting help and advice from other people during the coronavirus pandemic.* Participants responded using a 4-point scale: 1 (*I haven't been doing this at all*), 2 (*a little bit*), 3 (*a medium amount*), 4 (*I've been doing this a lot*).

News of COVID-19

Exposure to news regarding COVID-19 was measured with one item designed by the researchers. Participants were asked: *How often do you get the news related to COVID-19 from any source?* and responded by selecting: *Less than one time per week, A few times a week, approximately once a day, 2 to 3 times per day, 4 to 5 times a day, or More than 5 times per day.*

Health and Wellness Behaviors

The researchers designed all measures on health and wellness, unless otherwise noted.

Daily routine was measured with three items: 1) *I wake up and go to sleep around the same time every day.* 2) *I eat around the same time every day.* 3) *I exercise around the same time every day.* Participants responded to each item using a 5-point scale: 1 (*strongly disagree*), 2 (*disagree*), 3 (*neither agree nor disagree*), 4 (*agree*), 5 (*strongly agree*). These three items were combined into an index.

Daily exercise was measured with three items, two of which are from the International Physical Activities Questionnaire (Fogelholm, et al., 2006): 1) *How many days per week do you engage in moderate exercise (e.g. walking, yoga, etc.) for 30 minutes or more?* 2) *How many*

days per week do you engage in vigorous exercise (e.g. running, active sports, aerobics etc.) for 20 minutes or more? The third item was designed by the researchers: *3) Has your exercise routine been significantly interrupted by COVID-19?* answered on a 4-point scale: 1 (*yes, I am no longer able to do my regular routine*), 2 (*yes, but I am still able to continue my routine or something close to it*), 3 (*no, I am still able to continue my routine as before*), 4 (*no, I never had a routine*). The first two items were combined into an index.

Time spent outdoors was measured with one item: *On average, how much time do you spend outside per day?* answered as follows: *0 – 30 min, 30 min – 1 hour, 1 – 2 hours, 2 – 3 hours, 3 – 4 hours, or Over 4 hours.*

Sleep quality was measured with two items based on the Pittsburgh Sleep Quality Index (Carpenter & Andrykowski, 1998). They were: 1) *During the past month, have you had any trouble sleeping because you cannot get to sleep within 30 minutes, or you wake up in the middle of the night or early morning?* answered 1 (*never*), 2 (*rarely*), 3 (*sometimes*), 4 (*often*), 5 (*always*), and 2) *Overall, how would you rate your sleep quality* answered with a 4-point scale: 1 (*very good*), 2 (*fairly good*), 3 (*fairly bad*), 4 (*very bad*). These two items were combined into an index.

Resilience Factors

Optimism was measured using items adapted from the Life-Orientation Test - Revised (LOT-R) (Scheier et al., 1994). The LOT-R is a valid and reliable assessment tool for measuring dispositional optimism and there is a large body of research linking it to physical and mental health. The items were: 1) *I am optimistic about how life will resume after the Coronavirus.* 2) *I have maintained a positive outlook during the pandemic.* Participants responded to each item

using a 5-point scale: 1 (*disagree*), 2 (*somewhat disagree*), 3 (*neutral*), 4 (*somewhat agree*), 5 (*agree*).

Active coping was measured with 5 items adapted from the Brief COPE Scale (Carver 1997). The Brief COPE measures multiple different coping styles, but only a subset of items on coping by positive reappraisal and problem focused coping subscales were of interest. The items asked, “*To what extent do you agree with the following statements regarding how you are coping in the time since the Coronavirus required us to shelter in place?*” 1) *I've been trying to see current events in a different light, to make it seem more positive.* 2) *I've been looking for something good in what is happening.* 3) *I've been concentrating my efforts on how to protect myself during the coronavirus outbreak.* 4) *I've been taking action to try to make the situation better.* 5) *I've been getting help and advice from other people during the coronavirus pandemic.* Participants responded to each item using a 4-point scale: 1 (*I haven't been doing this at all*), 2 (*a little bit*), 3 (*a medium amount*), 4 (*I've been doing this a lot*). Items were combined into one index.

Self-efficacy was measured with two items from the Generalized Self-Efficacy scale and the Ryff Positive Well-Being subscale on Environmental Mastery (Abbott 2010; Sherer et al., 1982). Participants were asked to respond to two items: 1) *I am confident that I could deal efficiently with unexpected events.* 2) *I am quite good at managing the many responsibilities of my daily life.* Participants responded to each item using a 5-point scale: 1 (*disagree*), 2 (*somewhat disagree*), 3 (*neutral*), 4 (*somewhat agree*), 5 (*agree*). The two items were inter-correlated $r(285) = .486, p = < .001$, and combined into an index of self-efficacy.

Religiosity was measured with items adapted from the Brief Multidimensional Measure of Religiousness/Spirituality (BMMRS) (Fetzer, 2003). The BMMRS and its subscales are valid

and reliable and have been used in past research (Harris et al., 2008). Participants were asked to respond to three items: 1) *To what extent do you consider yourself a religious person?:* 1 (*not at all*), 2 (*slightly*), 3 (*moderately*), 4 (*very*). 2) *Do you ever attend worship services?* 3) *Do you ever pray?* For the second and third items, participants responded either 1 (*No*) or 2 (*Yes*). If the participants responded 2 (*Yes*) to the second item, they would be asked: Since COVID-19, do you attend virtual worship services more or less often than before? Participants responded to both using a 4-point scale: 1 (*less often or much less often*), 2 (*same, whether none or lots before*), 3 (*more often*), 4 (*much more often*).

Spirituality was measured by one item from the Brief Multidimensional Measure of Religiousness/Spirituality (BMMRS) (Fetzer, 2003). 1) *To what extent do you consider yourself a spiritual person?* using a 4-point scale: 1 (*not at all*), 2 (*slightly*), 3 (*moderately*), 4 (*very*).

Emotional expression was measured with one item: *How often did you talk to a family member or friend about something that is bothering you in the past month?* answered from these options: *daily, 2-3 times a week, once a week, once every two weeks, or once a month.*

At the very end of the survey, participants were invited to provide any additional comment they wanted, providing us with some quotes to illustrate various themes.

Results

Descriptive Results

All means and standard deviations appear in Table 1.

Perceived Vulnerability

When asked how likely participants thought it was that they would contract the virus within the next year, the modal response was *somewhat likely* (47%) while 16% (45) said *likely*, 7% (19) said *very likely*, and 5% said *almost certain*. In contrast, 26% (73) said *not likely*. On

average, the mean was 2.19 or *somewhat likely* to contract the virus within the next year ($SD = 1.06$). (See Supplementary Figure 1 for distribution of answers on this item.)

Anxiety Symptoms

Participants reported moderate levels of anxiety symptoms with a mean score on the index of 16.57 ($SD = 5.47$). There was a wide range of responses for tense, worried, nervous, and calm each with mean scores of 3 (*moderately*) and closer to 2 (*a little*) for scared and afraid. (See Supplementary Figure 2 for item distributions.)

Depressive Symptoms

When asked how often they feel they have no motivation to do certain things they used to before the virus, the most common responses were *sometimes* (36%) and *often* (35%). Similarly, ratings of *little or no interest or pleasure in things, hopelessness, and trouble concentrating* were relatively high. (See Supplementary Figures 3, 4, and 5 for item distributions). The mean on the index was $M = 16.22$ ($SD = 3.78$).

Perceived Stress

Most respondents reported that they felt unable to control important things in their lives *fairly often* (33%) or *very often* (15%) or *sometimes*, (35%) (see Supplementary Figure 6 for item distributions). Similar responses were obtained for feeling difficulties were piling up so high they could not overcome them. However, a majority felt confident in their ability to handle personal problems *sometimes* (47%), *fairly often* (32%), and *very often* (8%). A minority 12 to 30% reported stress *never* or *almost never* on these items. The mean on the PSS was 12.66 ($SD = 1.43$) (See Table 1). One respondent commented on the stress they are experiencing due to COVID as follows: “Personally, the uncertainty regarding the financial situation and graduating in June to enter a job market in crisis has been very distressing.” Another participant mentioned

their worry for those around them as follows: “*I’m concerned more for the health of my older relatives than mine own*”.

Life Satisfaction

In response to the statement “*In most ways, my life is close to ideal,*” 34% said they disagreed, 14% strongly disagreed and 32% said they felt neutral. Less than a quarter of the respondents said they agreed (18%) or strongly agreed (2%). In contrast, participants responded more positively to the statement “*The conditions of my life are excellent,*” with 5% strongly agreeing, 30% agreeing, 30% neutral, 25% disagreeing, and just 9% strongly disagreeing. In response to “*I am satisfied with my life*” 6% strongly agreed, 33% agreed, 35% felt neutral, 25% disagreed, and 9% strongly disagreed. The mean on Life Satisfaction was 8.70 ($SD=2.64$)

Overall, life satisfaction is low compared to other studies.

Subjective Health

Subjective health ratings were surprisingly low for a young sample with as many as 42% rating their physical health as *fair or poor*. Another 32% (90) said *good*, 22% (63) said *very good*, and 5% (13) said *excellent*.

COVID-19 Prevention Behaviors

The majority of participants were practicing social distancing at the time of the study (May 2020) *very much* (50%) or *completely* (31%), followed by *somewhat* (19%) and one participant reporting *not at all*. Similarly, 53% were wearing masks *every time* they went outside, followed by 34% *almost every time*. However, 8% said *half of the time* and 5% said *not at all or nearly none*.

Regarding how often respondents get news related to COVID-19 from any source (see Supplementary Figure 7), most got it *2-3 times a day* (27%), *once a day* (21%), or *a few times a*

week (27%), although 20% got news very frequently (*4-5 times a day or more*). and 5% got news *less than once a week*.

Social Behaviors during COVID-19

A large majority of participants were quarantining with *three or more people* (60%), followed by 22% quarantined with *2 people*, 14% with *one other person*, and just 4% said they were *quarantining alone*. When asked how often they feel that they lack companionship (actual social isolation) now, the mode was *sometimes* (41%), but 28% said *often*, 20% said *rarely*, and 11% said *never*. Similarly, when asked how often they feel isolated (perceived social isolation) from others now, most participants reported *often* (36%) or *sometimes* (41%), and the remainder said *rarely* (16%) or *never* (7%). See Supplementary Figures 8 and 9. One participant commented about the importance of companionship: “*A few health scares have happened in my family at home and abroad, but we came together exceptionally well during our times of crisis, probably because we currently have more of a chance to focus on our family members.*”

Virtual interactions with one or more people took place *3 or fewer times a week* for the largest group (37%), with 25% of participants reporting *4-5 virtual interactions a week*, 12% said *5-6 times*, 7% said *6-7 times*, and 19% said *more than 7 times a week*. Face-to-face interactions with people outside the respondents’ living situation ranged from *3 or fewer times a week* (majority of 69%) to *more than 7 times a week* (8%).

Questions about social media use revealed a range from none to *9 or more hours a day*. The mode was *3-4 hours per day* (31%), followed by *5-6 hours* (24%), *1-2 hours* (20%), with 11% at *9 or more hours*, another 11% at *7-8 hours*, and only 8 people (3%) reported *none*.

Time talking about the virus was rated as *a few times a week* (28%), *once a day* (27%), and *2-3 times a day* (22%). However, 6% said less than *once a week*, and 17% said *4-5 times a day or more*. See Supplementary Figure 10.

See Supplementary Figure 11 regarding close social connections exposed to the virus. Nearly half (47%) had no close social connections that had been exposed to the virus. Yet 16% knew one person who had, 12% knew 2 persons exposed, and a quarter (25%) knew 3 or more persons exposed. Regarding how many participants knew someone who had contracted the virus (or likely had it even though not tested), 53% said *none*, but 20% said *one*, 15% said 2, 4% said 3, and 8% said *4 or more*. See Supplementary Figure 12.

When asked how often participants have been getting help or advice from others during coronavirus, participants reported *not doing this at all* (21%) or *a little bit* (40%), while the remainder said *a medium amount* (25%) or *a lot* (14%).

Health Behavior during COVID-19

In response to “*going to sleep and waking up around the same time every day*,” 14% strongly agreed, 46% agreed, 11% neither agreed nor disagreed, 19% disagreed, and 11% strongly disagreed. In regard to “*eating around the same time every day*,” 9% strongly agreed, 47% agreed, 8% neither agreed nor disagreed, but 32% disagreed or strongly disagreed. Lastly, in response to exercising around the same time every day, 39% strongly agreed or agreed, 17% neither agreed nor disagreed, and 44% disagreed, or strongly disagreed.

While quarantined, a large majority of participants were not exercising, or their routines had been interrupted, and they were spending very little time outside, with 39% reporting spending *0 - 30 minutes outside per day on average*. Also, 38% were *having trouble sleeping often or always*, and another 29% *sometimes*. A third of participants rated their sleep quality as

fairly bad (27%) or *very bad* (6%). Some participants commented about the pandemic being an opportunity to focus on various health behaviors. For example, “*It's caused me to be more healthy physically as it's allowed me more time to work out daily*”, while others have mentioned their struggle to find activities outside, “*Have been really wanting to spend time outside to either relax, but don't have the space around my house to do so*”.

Resilience Factors

Optimism

Participants were asked how much they agreed with the statement “*I am optimistic about how life will resume after the coronavirus.*” In response, 6% disagreed, and 29% said they somewhat disagreed, while 24% felt neutral, 26% somewhat agreed, and 15% agreed. The second statement, “*I have maintained a positive outlook during the pandemic,*” was answered with 16% of participants saying they *agreed* and 36% saying they *somewhat agreed*, while 6% said they *disagreed*, 15% *somewhat disagreed*, and 26% answered *neutral*. (See Supplementary Figures 13 for item distributions)

Active Coping

As can be seen in Supplementary Figure 14, participants coped since sheltering in place by looking for something good in what was happening, trying to see current events in a positive light, concentrating on how to protect themselves, and taking action to make the situation better. Most of them did this *a medium amount* or *a lot*, and some did it *a little bit*. Very few did not make use of these adaptive coping strategies. Many participants exemplified their active coping as a comment at the end of the survey, “*Anxiety has increased, but exercise and social interaction plus good eating and sleeping helps,*” one respondent stated. Another participant similarly commented, “*I have been skateboarding more, lots of free time to work on various*

projects and cooking new recipes.” Similarly, one participant found the benefit of performing prosocial behavior during the quarantine, “...*I currently attend school in a town of about 18 thousand people so I've started volunteering with local groups who are helping others during the pandemic. The community aspect has allowed me to feel better as a person because it's not all doom and gloom when you're working with others who are trying to make the situation better for others.*” And others stated ways they see positive aspects in the virus: “*It's kind of weird and different but pretty chill, opportunities to learn new skills! I've been thinking a lot more positively.*” Another respondent also viewed the quarantine as an opportunity for personal growth, “*It has given me the time to really focus inwards on my personal growth and development as a young adult.*”

Self-Efficacy

Self-efficacy ratings were fairly high among the participants. When participants were presented with the statement “*I am confident that I could deal efficiently with unexpected events,*” most participants somewhat agreed (47%) or agreed (11%), whereas 21% felt neutral, 12% somewhat disagreed, and only 4% disagreed. Similar responses were given for the statement “*I am quite good at managing the many responsibilities of my daily life*” with 44% of respondents saying they somewhat agreed and 22% said agreed, compared to 11% who somewhat disagreed and 3% who disagreed. In addition, 20% of participants said they felt neutral about the statement.

Religiosity and Spirituality

While 27% reported being *moderately religious* and 10% said *very religious*, the majority considered themselves *not religious at all* (37%), or *slightly religious* (25%). In addition, 42% reported attending worship services, and among those, 58% reported they attended virtual

worship services *less often or much less often* than before, 31% said they attended virtual service *the same amount*, 11% said they attended *more often*, and 1% reported attending *much more often*. For prayer, 56% said that they observed this practice. A majority (63%) reported praying the same amount during the pandemic as they did before it. When asked how spiritual they were, 22% of respondents reported *not being spiritual at all*, 31% stated being *slightly spiritual*, 32% were *moderately spiritual* and 14% were *very spiritual*.

Emotional Expression

Most of the participants had talked to a friend or family member in the past month about things that were bothering them (from *once a week* to *daily*), although 28% talked to someone about something that was bothering them infrequently (*every two weeks, monthly*).

Hypothesis Testing

Emotional Distress Index

An index on emotional distress was created by standardizing and summing the scores on anxiety and depression supported by their inter-correlation which was $r(276) = .47, p < .01$.

Gender Differences

Gender differences in some study variables occurred. First, females ($M = .29, SD = 1.62$) were more likely to be emotionally distressed than males ($M = -.75, SD = 1.67$), $t(270) = -4.70, p < .01$. Females ($M = 3.92, SD = 1.78$) also reported less social interaction than males ($M = 4.68, SD = 2.19$), $t(276) = 2.99, p < .01$. There was also a significant difference in reported optimism about the pandemic, with men ($M = 7.23, SD = 1.83$) reporting significantly higher optimism than women ($M = 6.31, SD = 1.99$), $t(279) = 3.54, p < .01$. There were no significant gender differences for exposure to COVID-19 news, talking about COVID-19, number of people

quarantined with, actual social isolation, perceived isolation, religiosity, spirituality, adherence to a daily routine, active coping, self-efficacy, exercise, and time spent outside.

Predictors of Perceived Vulnerability

Exposure to the news on COVID-19 was significantly and positively correlated with perceived vulnerability, $r(285) = .119, p < .05$, whereas social media use was not, $r(285) = .052, p = .380$. In addition, talking about COVID-19 more often was significantly associated with higher perceived vulnerability, $r(285) = .146, p < .05$. Exposed social connections were significantly correlated with perceived vulnerability, $r(285) = .204, p < .01$ such that higher amounts of exposed social connections were associated with higher perceived vulnerability.

Neither self-efficacy nor active coping were significantly associated with perceived vulnerability, $r(285) = .076, p = .200, r(285) = .052, p = .381$. Optimism, however, was significantly and inversely correlated with perceived vulnerability, $r(285) = -.151, p < .05$. This indicates that higher optimism about the virus was associated with lower perceived vulnerability to contracting it.

Bivariate Predictors of Emotional Distress

Bivariate correlations tested hypotheses on predictors of higher emotional distress (see Table 1 for full results). Exposed social connections were not significantly associated with emotional distress, $r(276) = .037, p = .538$, nor was quarantining alone $r(276) = -.072, p = .230$ or support from others $r(276) = .033, p = .587$. However, exposure to the news on COVID-19 was found to have a significant positive correlation with emotional distress, $r(276) = .196, p < .01$, and greater perceived social isolation was correlated with greater emotional distress, $r(276) = .373, p < .01$. Social media use and time spent talking about COVID-19 also had significant positive correlations with emotional distress, $r(276) = .231, p < .01; r(276) = .250, p < .01$.

However, social interaction had a significant negative correlation with emotional distress, $r(276) = -.171, p < .05$. The more social interaction a person had, the lower their emotional distress.

Optimism was significantly inversely correlated with emotional distress, $r(276) = -.548, p < .01$, as were spirituality and religiosity, $r(275) = -.124, p < .05$; $r(275) = -.148, p < .05$, and maintenance of a daily routine, $r(276) = -.205, p < .01$. This indicates that being more optimistic, more spiritual, more religious and higher adherence to a daily routine all predicted lower emotional distress. Amount of daily exercise was not significantly correlated with emotional distress, $r(276) = -.089, p = .140$, but amount of time spent outdoors was, $r(275) = -.187, p < .01$, such that higher amounts of time outdoors was associated with lower emotional distress.

Self-efficacy and active coping were also found to have significant negative correlations with emotional distress ($r(276) = -.345, p < .01$; $r(276) = -.127, p < .05$). Higher amounts of self-efficacy and active coping was associated with lower emotional distress ($r(276) = -.345, p < .01$); ($r(276) = -.127, p < .05$), as were religiosity ($r(276) = -.148, p < .05$) and spirituality ($r(276) = -.124, p < .05$).

Multivariate Regression Analyses on Emotional Distress

In order to compare the independent contributions of various factors to emotional distress, we conducted multiple linear regression analyses in which all significant bivariate correlates were entered at once into the equation. All predictors were tested for multicollinearity first and were not intercorrelated above .40 with one exception. Time talking about COVID-19 and time exposed to news were associated highly, and therefore, we tested them separately in the parallel regressions.

There were 12 predictors in the primary regression equation and adjusted R square was .43 when time talking about COVID-19 was in the model. When news about COVID-19 was in

the model, less variance was accounted for, but results were similar. The results indicated that how often participants talked about COVID-19 (or saw the news), social media use, and perceived social isolation (marginal), each independently predicted higher emotional distress whereas time spent outdoors, and following daily routines predicted lower distress. In addition, optimism about the virus and self-efficacy each independently predicted lower emotional distress. Religiosity and spirituality were not significant in the controlled multivariate analyses (Regression results appear in Table 2).

Discussion

The present study was conducted early in the onset of the COVID-19 pandemic (May 2020). The goal was to learn about the experiences of students, mostly seniors at UCLA and their peers and friends. We recruited a sample of 285 with a high response rate during a single week in May. Student researchers formulated the research topics and questions. These focused mainly around behaviors and perceptions of the virus and stress, emotional distress, and resilience at the time of quarantining which happened suddenly, with online education commencing during the final quarter of college for many. The analyses revealed several useful findings regarding the vulnerability and behaviors of the sample.

What were students doing early in quarantine?

Young adults in higher education seemed to respond quickly to guidelines provided to help slow the spread of COVID-19, with over a large majority practicing social distancing and wearing masks consistently. Perhaps one reason is that those in higher education in this sample had fast and direct access to trusted information from the university about how to stop the spread of the virus. Many students also reduced the amount of face-to-face interactions with people outside of their living situation to 3 or less per week. While this shows that students took

measures to prevent the spread of the disease, it is not clear if virtual interactions replaced face-to-face interactions for these students, since over one-third reported 3 or less virtual interactions a week. This is far less social interaction than students would experience under normal circumstances on college campuses, and the low amount of interaction corresponds with high feelings of isolation among the students. Many students were using social media for 3-6 hours a day. Over half reported not exercising, or no longer being able to exercise due to the virus. Thus, an increase in isolation and sedentary activities that are especially unhealthy in a young population might be inferred from the patterns of results. It is also interesting that over half of the students were seeking very little or no help or advice from others during the onset of the pandemic. This could be because the students do not feel as if they need help or advice. However, it could also occur because they do not feel comfortable seeking it, or do not have the opportunity to seek it due to low amounts of social interaction. Overall, the social and preventive behaviors of this sample early in the COVID-19 quarantine does not match the portrayal of their age group in the media as reckless or careless about spreading the virus.

Who felt vulnerable?

About 70% of the students said they were not likely, or only somewhat likely, to contract the virus in the next year. This could indicate that students trusted COVID-19 prevention measures, which many adopted consistently. However, participants who had more social connections who had been exposed to the virus, or who had contracted COVID-19, felt more vulnerable to getting the virus, consistent with hypotheses. In addition, participants who were getting greater exposure to the news and who talked more with others about the virus had higher feelings of vulnerability. That is, those who felt more vulnerable may have sought out news and conversations with others more often. At the same time, talking and news exposure may have

increased vulnerability. Higher optimism about the virus was associated with lower perceived vulnerability. Optimism is a strong resilience factor that has been studied as a trait (Carver & Scheier, 2014), although we asked about the future in the context of the virus.

Contrary to hypotheses, social media use was not significantly associated with perceived vulnerability. This is interesting because social media use was thought to lead to more news exposure, which did predict greater vulnerability. In addition, social media use was associated with higher emotional distress. However, the content of one's social media use was not studied, and that may be a reason. Future studies can focus on specifics of social media use as one direction of possible interest. Also inconsistent with hypotheses, the resilience factors of self-efficacy and active coping were not associated with lower perceived vulnerability. However, vulnerability was assessed with only one item and the active coping index was low in reliability. Thus we did not conduct a strong test of this link. Future research can assess vulnerability with multiple items to learn more.

In sum, the strongest predictors of student vulnerability were social factors with social connections who had been exposed to or contracted the virus being the leading predictor. These students may be most in need of support.

How well were students doing early in quarantine?

Anxiety levels were moderate among respondents, but certain depressive symptoms such as feeling no motivation to do things they did before, or interest or pleasure in doing things, were relatively high. Participants also reported fairly high stress, with many saying they felt unable to control important things in their lives. Reports on life satisfaction also stood out among this group. Almost half the students disagreed that their life was close to ideal. Similarly, only a little over a third of the students agreed in some capacity that they were satisfied with their life. Thus,

students were clearly suffering to some extent at the time early in the pandemic when this study was done.

Many participants gave insight into their emotional distress through the open question at the end of the survey that asked if there was anything else they would like to tell us. Some mentioned a lack of motivation as a major consequence of the pandemic:

I have been extremely unmotivated in school and find it very hard to concentrate on classes and tests.

*I like indoor activities quite a lot but I don't feel like I have the energy to do them anymore, even if I slept well or ate breakfast. I *want* to do something but as soon as I start, I feel too tired and actively trying to force it almost repulses me. This has also made school very difficult.*

Many students also mentioned their frustration with people not taking the virus seriously;

It's frustrating when I am social distancing and I see other people not doing the same. Feels like my efforts are in vain.

The thing that has most concerned me during this pandemic is actually the people who refuse to take it seriously. More than the virus itself, the people who go out to protest the social distancing guidelines really bothers me. This is an emergency situation and the fact that some people aren't capable of basic empathy or sacrifice is concerning.

For most of the participants who left a comment one thing was clear: The COVID-19 Pandemic had significantly disrupted their lives. They commented as follows:

Sports and athletics was a big piece of my life at college, and not being able to be with my team and play our sport together has been difficult.

When I was at school, living on my own I felt like I was slowly but surely getting my life to where I want it to be. Since I had to move back home I feel like I have taken steps back.

I have learned that life truly can get very unexpected and scary.

What predicted higher emotional distress?

Our measure of emotional distress was better than the measure of vulnerability as it consisted of two multiple-item indices on anxiety and depressive symptoms based on standard

measures, and together, formed a strong index of emotional distress.

In multiple regression analyses, we found that our variables accounted for a large amount of variance in emotional distress and many variables made independent contributions including social factors such as how much students talked about COVID-19, or saw the news, and more social media use. Other protective factors that made independent contributions to distress in the sample were optimism, which was the strongest predictor, and self-efficacy, both of which are established resilience factors. Higher levels of both of these was associated with lower distress. These findings were largely consistent with our study hypotheses and prior research on resilience factors (Barzilay et al., 2020; Dunkel Schetter & Dolbier, 2011; Masten, 2018; Van der Velden et al., 2007). Contrary to hypotheses, quarantining alone did not emerge as a major factor in student distress when other variables were controlled. Other factors such as virtual social contact, time outdoors and having pets may have mitigated the distress due to being alone during quarantine. Similarly, contrary to hypotheses, receiving support from others about the virus was not associated with emotional distress. In addition, the number of exposed social connections was not associated with emotional distress in contrast to findings on vulnerability. Apparently, knowing others who were exposed to--or who contracted--COVID-19 increases one's feelings of vulnerability but not one's emotional distress.

Some of the hypotheses were confirmed in bivariate tests but not in multivariate tests which suggests their effects may be due to other variables in the model. That included variables such as amount of social interaction, religiosity, and spirituality, each of which were associated with lower emotional distress in simple correlations. These findings warrant attention in conceptual models with further measures. There was no association of exercise and lower emotional distress, a finding inconsistent with prior research. This could in part be due to the fact

that many participants were not able to exercise or that their exercise routine had been disrupted, such that exercise was not as beneficial to well-being under the changing circumstances. We did however, find that time spent outdoors was associated with lower emotional distress. A growing body of work on the benefits of green spaces is consistent with this finding (Lee & Maheswaran, 2011). We also found that more active coping and higher self-efficacy significantly predicted less emotional distress in bivariate tests, consistent with our hypothesis, and confirming a body of work showing that resilience factors are protective against emotional distress (Julian, et al., in press 2020). However, these were not significant in the multivariate model.

Overall, resilience factors played a much larger role in predicting lower emotional distress, while social factors played a significant role in both perceived vulnerability and emotional distress. News about COVID-19 and talking about the virus with others both stand out, as they were social factors that correlated with both greater perceived vulnerability and higher emotional distress. What is potentially so negative about exposure to the news? The findings here are consistent with past work showing that media coverage can add to distress and even create symptoms of trauma in the population following community level disasters (Garfin, Thompson, & Holman, 2018). We cannot infer causality, but findings are consistent with this longitudinal research on media exposure and distress.

Further, we found that females were more likely than males to have higher emotional distress, paralleling the US population in general (Figita et al, 1991; Nolen-Hoeksema & Girgus, 1994). The sample contained many more women than men but had a wide range of self-identified race and ethnicity. Most were current seniors at one university, with others graduating in a year. Analyses did not examine only seniors or only UCLA students but easily could for different purposes than these.

Recommendations

First, there may be a message in our results for students -- that finding optimistic perspectives, practicing cognitive reframing and problem focused coping, bolstering your sense of self efficacy, maintaining daily routines, and finding ways to rely on religiosity and spirituality if relevant to you could help manage and reduce emotional distress. Minimizing exposure to the media about the pandemic and reducing the amount of time spent talking about COVID-19, or at least conversations dwelling on the negative can go a long way toward minimizing distress. Instead, it may be better to look for the positives in the current pandemic and cope by problem solving how one can still make progress toward goals despite the limitations students are faced with now. Students may also want to reduce time spent on social media and spend more time outdoors to improve well-being. Students who are feeling vulnerable as well as emotionally distressed may want to avail themselves of the many resources on campus that address anxiety and depression such as counseling services (<https://www.counseling.ucla.edu>), other health and wellness resources (<https://healthy.ucla.edu/>) and mindfulness awareness resources (<https://www.uclahealth.org/marc/>).

These findings may also be useful to institutions of higher education when making adjustments on campus due to the pandemic and providing resources. Our study's results suggest that overall students were adhering to recommendations and were fairly resilient. However, addressing feelings of vulnerability and emotional distress in targeted programs may be beneficial. For example, if communications from the campus (or in the news) are pessimistic or overly negative in tone, it may undermine students' sense of optimism, self-efficacy and normal coping skills. Presenting optimistic yet realistic communications in regard to the virus, and encouraging students, could help reduce emotional distress and increase perseverance among

students. Instructors could play a role in this during classroom time and conferences.

Asking more questions in campus surveys regarding why students are feeling vulnerable would make it easier for higher education institutions to directly address vulnerability concerns. Moreover given the dramatic changes afoot in higher education, regular surveys should be conducted to be in touch with students changing needs. It would also be beneficial for institutions to consider how they can directly support student development of the protective factors identified in this study, such as coping and self-efficacy. Engaging and educating students on healthy active coping styles, as well as assisting them in feeling capable of handling the pandemic, may also help reduce distress among students through boosting self-efficacy. Furthermore, there are evidence-based interventions emerging on how to cultivate optimism and teach coping skills that deserve attention on college campuses (e.g., Mohammadi, et al., 2020). It is crucial that colleges and universities find safe methods to continue to connect students with each other during the pandemic, as social interaction was a significant factor in lower emotional distress (Cheadle & Dunkel Schetter, 2018).

Limitations of the Study

Although the present study had strengths in that it was mounted immediately after the virus began and was conducted by students who understood the student experience, we acknowledge that there are limitations. The present study was conducted using a non-experimental cross-sectional panel design which could not permit inferences about causality. Longitudinal studies of representative groups of students are needed using state of the art measures, and student collaboration. Another limitation to the present study was the time limit to the survey which was designed to be brief enough to obtain a strong response rate, which we did. However, we therefore did not measure more details such as the specific topics being talked

about (e.g., dying versus how to survive), activities on social media, and support needs. We had minimal ability in this design to get information in students' own words which would be very valuable. Another limitation to the present study could be that the external validity of the findings. This study sampled students and other young adults in California. Therefore, the findings generalize only to UCLA students and others of the demographics described. For example, young adults living in California may exhibit more optimism as well as be more likely to engage in outdoor activities because of the sunny climate and proximity to nature compared to people in colder climates. A collaborative study across various universities would be a useful future endeavor to collect relevant data in times of crisis. A panel of students might be set up across campuses for annual surveys with standard questions for comparison. Such studies have been done in the past by HERI at UCLA on freshman every year (<https://heri.ucla.edu/publications/>) but may not capture topics that are meaningful to students at this time as well as a student collaborative study could.

Future Implications

Studies of COVID-19 and its impact on students are much needed as higher education is dramatically changing and will be different for the foreseeable future and perhaps permanently once universities and students adapt to online learning. It is important now more than ever to conduct studies on this to fully understand the needs and strengths of students and how to help them effectively cope with this sudden shift. Identifying the connections between universities and its students' mental and physical well-being is crucial as policymakers and administrators in educational institutions are guided by research in making decisions to extend all the necessary help during a time of unprecedented global stress.

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Table 1 Descriptive Statistics and Bivariate Correlations for Study Variables with Emotional Distress

Variable	M	SD	Emotional Distress
Emotional Distress	.0064	1.71721	1
Perceived Vulnerability	2.19	1.06	0.142*
Depressive Symptoms	16.22	3.78	N/A
Anxiety Symptoms	16.57	5.47	N/A
Perceived Stress	12.66	1.43	N/A
Life Satisfaction	8.70	2.64	N/A
News	3.44	1.42	0.196**
Social Interaction	4.12	1.93	-0.171**
Actual Isolation	3.39	0.86	-0.072
Perceived Isolation	4.11	1.72	0.373**
Social Media Use	3.54	1.30	0.231**
Talking about COVID 19	3.25	1.33	0.250**
Optimism	6.57	2.01	-0.548**
Religiosity	2.10	1.02	-0.148*
Spirituality	2.39	0.984	-0.124*
Daily Routines	9.33	3.06	-0.205**
Active Coping	13.20	2.94	-0.127*
Self-Efficacy	7.33	1.75	-0.345**
Exercise	7.35	3.68	-0.089
Exposed Connections	4.27	2.49	0.037
Time Outside	2.15	1.29	-0.187**
Receiving Support	2.33	.963	0.033

N = 276 to 285, *p<.05. **p<.01.

NA indicates that no tests conducted between the two variables because it was not hypothesized

Table 2 Regression Analysis Summary for Predicting Emotional Distress

Variable	Unstandardized		Standardized		<i>p</i>
	B	Std. Error	β	t	
(Constant)	3.553	.589		6.037	.000
Time Talking About COVID- 19	.177	.063	.136	2.826	.005
Social Media Use	.183	.064	.137	2.889	.004
Daily Routines	-.045	.027	-.081	-1.690	.092
Religiosity	-.042	.096	-.025	-.436	.663
Spirituality	-.006	.099	-.004	-.065	.948
Optimism	-.339	.045	-.397	-7.510	.000
Social Interaction	-.068	.043	-.077	-1.603	.110
Active Coping	.041	.030	.070	1.363	.174
Self-Efficacy	-.178	.049	-.182	-3.647	.000
Social Isolation	-.165	.050	-.164	-3.312	.001
Time Outside	-.133	.063	-.100	-2.096	.037

Dependent Variable: Emotional Distress