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College students and COVID-19: Psychological well-being and academic performance

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Abstract

When the United States declared a national emergency due to the COVID-19 pandemic on March 13, 2020, many college students were forced out of campus and back to their homes, altering normal routines and academic environments for students. Recent research suggests potential psychological and academic implications from the pandemic on college students. The goal of the current study was to explore overall psychological well-being and changes in academic performance throughout the COVID-19 pandemic in college students. Psychological well-being was defined as an individual's levels of depressive symptoms, anxiety, and social isolation. 89 undergraduate students at Campbell University were asked to complete an online Qualtrics survey that included the *Beck Depression Inventory*, the *State-Trait Anxiety Inventory*, a revised social isolation questionnaire, and questions about academic performance. Preliminary results supported the hypotheses. 63% of students felt that their academic performance was negatively impacted by the pandemic. Strong positive correlations were found between social isolation and depression ($r = .717$; $p < .001$), social isolation and anxiety, ($r = .734$; $p < .001$), and depression and anxiety ($r = 0.866$; $p < .001$). There was an upward trend of students who felt that their GPA was lower than previous semesters from Spring 2020 to Spring 2021. One-way ANOVA analyses revealed a significant difference between levels of depression and perceived academic impact [$F(2,87) = 4.32$, $p = .016$], levels of anxiety and perceived academic impact [$F(2,87) = 5.469$, $p = .006$], and social isolation and perceived academic impact [$F(2,87) = 4.169$, $p = .019$].

Keywords: COVID-19, depression, anxiety, social isolation, academic performance, college students

College Students and COVID-19: Psychological Well-being and Academic Performance

At the beginning of the COVID-19 pandemic, after the U.S. declared a state of emergency around April 2020, there were “high levels of depression, high anxiety [levels], high levels of loneliness, and high levels of PTSD symptoms” in young adults (Liu et al., 2020, p. 3). While college students are already known to undergo certain amounts of stress, their perceived levels of stress and anxiety were especially high in April (Hoyt et al., 2021). Not only are college students balancing the normal stress of university life, but they are also bearing the weight of the pandemic while pursuing their degree, potentially disrupting their overall success in school.

Prior to the rise of the pandemic, trends of anxiety, depressive symptoms, and other mental health concerns in college students were already on the rise. Previous research examined an increase in symptoms of anxiety (24%), depression (34%), and suicidal ideation (76%) between 2011 and 2018 among undergraduate students (Duffy et al., 2019). Additionally, the utilization of mental health services by college students has increased substantially between 2007 and 2017 (Lipson et al., 2018). Since anxiety and depression are known to be comorbid, and trends of mental health conditions among college students have continuously been on the rise, it is imperative to observe mental health and social support in undergraduates throughout times of crisis, like the COVID-19 pandemic. A more recent study found that “higher social anxiety was associated with more time or greater likelihood of spending time at home, and more negative or less positive affect was linked to longer homestay” in college students (Chow et al., 2017, p. 1). Isolation, or spending time at home, was not only linked with higher levels of social anxiety, but with greater negative and less positive affect as well. Research by Palgi et al. (2020) supports loneliness during the pandemic as a “main risk-factor for depression, anxiety and especially their

comorbidity” (p. 110). This highlights the importance of social interaction, particularly among college students and/or individuals in times of crisis.

College students are not only experiencing increased levels of stress, anxiety, and loneliness, but they are navigating new formats of education as well. There is a lack of research on how the disruption of educational formats could potentially influence students’ academic performance and perception of academic performance. One study examined student attitudes toward a forced transition to online learning due to the COVID-19 pandemic. Trout (2020) found that while some college students discussed benefits of online learning (e.g., rewatching pre-recorded lectures), the majority of participants “disagreed that online courses provide an effective way to learn material” and expressed that they would rather take online courses outside of their major area of study. A recent study examining attitudes toward online learning in a blended, or hybrid, course found that students’ “online learning attitudes were generally positive and increased when completing the course” (Zhu et al., 2020, p. 1485).

The research mentioned above highlights the importance of psychological well-being and social interaction in individuals, specifically college students. There is a lack of research discussing the intersection of psychological well-being, class formats, and academic success during the COVID-19 pandemic. Therefore, the goal of the current study was to explore psychological well-being, academic performance, and the types of class formats taken by college students throughout the pandemic. For the purpose of this study, psychological well-being was operationalized as an individual’s levels of depressive symptoms, anxiety, and social isolation. Based on previous research, the hypotheses examined were 1) depression, anxiety, and social isolation would all be positively correlated with one another and 2) if one had high levels of depression and anxiety, then one would also have decreased academic performance.

Method

Participants

A total of 89 undergraduate students participated in this study. All participants were at least 18 years of age or older and currently enrolled as undergraduate students at Campbell University. Participants were recruited by sending a mass email to all undergraduate students at Campbell University with information to complete the study. Initially, 158 students were recruited, although all incomplete questionnaires were discarded, removing 67 participants from the study.

Instruments

An online survey was used to collect data from participants via Qualtrics. The survey was 82 questions long and measured levels of depression and anxiety, levels of loneliness, academic performance, and feelings about one's academic performance. The questionnaire consisted of the *Beck Depression Inventory* (BDI-II), the *State-Trait Anxiety Inventory for Adults Short Form* (STAI), a *Revised Social Isolation Questionnaire*, and a set of questions created by the author about academic performance.

Beck Depression Inventory

The BDI-II was used to measure each participants' level of depressive symptoms. The inventory consists of 21 multiple choice questions, including one that asks about suicidal ideation ($\alpha=.95$). The BDI-II is a Likert scale, with ratings ranging between a score of 0-3 for each item. An example answer choice from this inventory about general depressive symptoms is, "I feel sad much of the time" (Beck et al., 1996). An example answer choice from the suicidal ideation multiple choice question is, "I have thoughts of killing myself, but I would not carry them out" (Beck et al., 1996). The BDI-II is scored by summing the selected ratings and/or

reverse-scores of all items. A score of 0-13 equates to “minimal depression”, a score of 14-19 equates to “mild depression”, a score of 20-28 equates to “moderate depression”, and a score of 29-63 equates to “severe depression”.

State-Trait Anxiety Inventory for Adults (Short Form)

The STAI was used to gather information on individuals’ levels of anxiety. The inventory consists of 20 multiple choice questions in which the participant must select whether or not a statement is much like oneself ($\alpha=.95$). Participants could select from a range of 4 responses from either *not at all* to *very much so* or from *almost never* to *almost always*. An example item from this inventory is, “I worry too much over something that doesn’t really matter” (Spielberger et al., 1983). The STAI is scored by summing the selected ratings and/or reverse-scores of all items. A score of 20-37 indicates “no or low anxiety”, a score of 38-44 indicates “moderate anxiety”, and a score of 45-80 indicates “high anxiety”.

Revised Social Isolation Questionnaire

The *Revised Social Isolation Questionnaire* consisted of 12 multiple choice questions and adapted from three scales measuring social isolation, loneliness, and general impact from COVID-19: *Measures of Social Isolation*, *COVID-19 Impact Survey*, and *Measuring Belongingness: The Social Connectedness and the Social Assurance Scales* (Lee et al., 1995; Waqar et al., 2021; Zavaleta et al., 2016). An example question from the Revised Social Isolation Questionnaire is, “I have no sense of togetherness with my peers.” Cronbach’s alpha was calculated to evaluate the internal consistency of the questions measuring an individual’s level of social isolation. Results showed good internal consistency ($\alpha=0.81$). The questionnaire is scored by summing the selected ratings of all items. A score of 0-9 indicates “minimal” social isolation, a score of 10-19 indicates “low” social isolation, a score of 20-29 indicates “moderate” social

isolation, a score of 30-39 indicates “high” social isolation, and a score of 40-50 indicates “very high” social isolation.

Academic Performance

A set of multiple-choice questions were created by the author to measure each participants’ academic performance and feelings about academic performance during Spring 2020, Fall 2020, and Spring 2021. The questionnaire consists of 26 multiple choice questions inquiring about the satisfaction of grades, increase or decrease in GPA, absence and/or withdrawal from classes, credit hour load, perceived academic impact, and the format of classes taken (in-person, online, hybrid, or a mix of all three). An example answer choice of perceived academic impact is, “I feel that my academics were negatively affected by the pandemic.” An example answer choice about academic performance is, “How was your GPA during the semester of Fall 2020 compared to previous semesters?” to which the participant could answer with *higher than previous semesters*, *lower than previous semesters*, or *around the same as previous semesters*.

Procedure

Once following the link in the email to the online Qualtrics survey, participants were met with two qualification questions before the consent form. Each participant was required to choose *Yes* after both questions confirming that they were 18 years of age or older and a current undergraduate student at Campbell University. Participants were then led to a consent form describing the purpose of the study, potential risks, the right to withdraw, and resources and contact information if necessary. Once participants gave consent, they could then continue to the main survey. At the end of the survey, students were led to a debriefing statement restating the purpose of the study and providing resources and contact information if needed. Participants

were required to select *Yes* to confirm that they had read and understood the debriefing statement at the end of the survey. The survey took approximately 25 minutes to complete.

Results

The Pearson Product Moment Correlation was used to examine the intercorrelations among depression, anxiety, and social isolation. The results were statistically significant. There were strong positive correlations between social isolation and depression ($r = .717$; $p < .001$), social isolation and anxiety ($r = .734$; $p < .001$), and depression and anxiety ($r = 0.866$; $p < .001$).

63% of students felt that their academic performance was negatively impacted during the pandemic, highlighting their perceived academic impact of COVID-19. The number of students who reported that their GPA was lower than previous semesters continuously increased from Spring 2020 (7) to Spring 2021 (34). There was a slight increase in the number of students who reported that their GPA was higher than previous semesters from Spring 2020 (17) to Fall 2020 (24). This number decreased to 16 by Spring 2021. There was also a slight increase in the number of students who reported that their GPA was around the same as previous semesters from Spring 2020 (35) to Fall 2020 (44). This number decreased to 39 by Fall 2021. Most students overall reported that their GPA was around the same as previous semesters in Spring 2020, Fall 2020, and Spring 2021.

One-way ANOVA analyses were performed to compare each psychological well-being variable (depression, anxiety, and social isolation) with perceived academic impact (positive, negative, or no impact from adjustments to COVID-19). There was a significant difference in levels of depression between at least two groups [$F(2,87) = 4.32$, $p = .016$]. Post hoc comparisons using the HSD Tukey indicated that there was a significant difference between the negative impact group ($M = 19.86$, $SD = 13.52$) and no impact group ($M = 10.50$, $SD = 9.56$).

There was no statistically significant difference in levels of depression between the positive impact group ($M = 15.38$, $SD = 11.44$) and the negative impact group, or between the positive and no impact groups. There was a significant difference in levels of anxiety between at least two groups [$F(2,87) = 5.469$, $p = .006$]. Post hoc comparisons indicated that there was a significant difference between the negative impact group ($M = 51.28$, $SD = 14.35$) and no impact group ($M = 40.10$, $SD = 10.29$). There was no significant difference in levels of anxiety between the positive impact group ($M = 50.23$, $SD = 11.11$) and the negative impact group, or between the positive and no impact groups. There was a significant difference in levels of social isolation between at least two groups [$F(2,87) = 4.169$, $p = .019$]. Post hoc comparisons indicated that there was a significant difference between the negative impact group ($M = 19.56$, $SD = 9.85$) and no impact group ($M = 12.65$, $SD = 8.62$). There was no significant difference in levels of social isolation between the positive impact group ($M = 18.85$, $SD = 7.49$) and the negative impact group, or between the positive and no impact groups.

Discussion

The results of this study supported the hypotheses and previous research by finding strong positive correlations between social isolation and depression ($r = .717$), social isolation and anxiety, ($r = .734$), and depression and anxiety ($r = 0.866$). While the majority of students reported that their GPA remained around the same as previous semesters in all 3 semesters discussed in the study, there was a continuous upward trend of students who reported that their GPA was lower than previous semesters from Spring 2020 to Spring 2021, supporting previous research. Findings on academic performance support previous research as more than half of the participants (63%) reported feeling that their academics were negatively affected by adjustments to COVID-19.

There are some general considerations for this study. One main consideration is the population and sample size of students who participated in the online survey. There were only 89 participants in this study, which is a fairly small sample size. If replicated, a much larger sample size would be optimal. The participants in this study were all undergraduate students at a small private university, in which more students were able to attend in-person classes than a larger, public university. If replicated, this study should capture other undergraduate populations outside of Campbell University as well.

Additionally, no significant differences were found between positive perceived academic impact and levels of depression, anxiety, or social isolation. This is likely due to the uneven distribution of groups in perceived academic impact. There were much fewer participants who reported that COVID-19 had a positive impact on their academic performance (13) than those to reported a negative impact (57) or no impact (20).

Another consideration concerns validity of the *Revised Social Isolation Questionnaire*; while the questions were pulled directly from questionnaires that have been used previously and tested for their validity, the *Revised Social Isolation Questionnaire* itself has not been used in previous studies, therefore information on its validity is limited. If replicated, this study could either gather this information or find another questionnaire that has been tested for good reliability and validity. A replication of this study would also benefit from collecting basic demographic information from participants (e.g., gender, age) to compare between groups of people in case one group is significantly higher or lower in one of the variables.

Conclusion

The goal of this study was to explore a possible relationship among depression, anxiety, social isolation, and changes in academic performance throughout the COVID-19 pandemic in

college students. There were multiple findings that supported previous research, emphasizing the importance of advocating for both mental health and academic support for individuals during times of crisis, especially for those in academic settings. This study adds to previous research in this field by examining academic performance in relation to psychological well-being during the pandemic. By finding evidence that supports previous findings that emphasize heightened levels of anxiety, depression, and now social isolation in college students, this study advances this field of research by examining potential problems students may be more likely to face as the pandemic progresses. Discovering a relationship between psychological well-being and academic performance in undergraduates during the pandemic, this research hopes to emphasize and illustrate the imperative need for outreach of mental health and academic support services to students, particularly in times of crisis.

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