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College Student Stress and Resilience during COVID-19

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Abstract

The COVID-19 pandemic had a drastic impact on the wellness of college students. In this study, researchers examined levels of stressful events, perceived stress, and resilience in a sample of 312 students at a Southeastern university. Students demonstrated a high volume of stressful events, lower levels of resilience, and high levels of perceived stress. The combination of stressful events and resilience explained a significant amount of the variance in perceived stress. Implications are included.

KEYWORDS

pandemic, mental health, coping, university, campus

INTRODUCTION

In spring of 2020, the SARS-CoV-2 virus, which causes the deadly respiratory disease COVID-19, spread across the globe leading to millions of infections and thousands of deaths (World Health Organization [WHO], 2020). As of March 2023, the virus has over 103,804,263 cases in the United States and is responsible for over 1,123,836 deaths (Johns Hopkins University, 2023). As a state of emergency was declared by global health organizations (WHO, 2020), nations took drastic steps to stem the spread of the virus. States within the United States shut down non-essential businesses (Wu et al., 2020), and universities across the country transitioned from face-to-face learning to online or virtual learning environments (Davidson College, 2020).

While there is evidence that these stay-at-home orders were effective both nationally and abroad at

reducing the spread of COVID-19 (Medline et al., 2020), they came with a price. Director-General of the World Health Organization Tedros Ghebreyesus (2020) highlighted the challenge for the world ahead indicating that while the public health measures that have been applied during this emergency are necessary, they are certainly costly. In particular, he expressed concern regarding the mental health impact, not only directly from the trauma of the COVID-19 pandemic but from the challenge of ongoing adherence to public health measures (Ghebreyesus, 2020).

Since the onset of the pandemic, health professionals recognized that while the disease itself has physically and disproportionately impacted older adults (Centers for Disease Control and Prevention [CDC], 2021), younger generations have confronted particular challenges with the social and emotional impact (Hotez et al., 2022; Hoyt et al., 2021; Lederer et al., 2020; Soria &

Horgos, 2021). Younger generations specifically are at risk for increased loneliness (Bu et al., 2020), employment-related economic hardships due to the pandemic (Ueda et al., 2020), and psychological distress (Hotez et al., 2022; Hoyt et al., 2021; Sorio & Horgos, 2021). These mental health challenges have taken an extreme toll on youth mental health, leading to significant increases in youth suicide during the pandemic (Bridges et al., 2023)

In addition to the ongoing mental health toll accrued from the COVID-19 pandemic, students have endured a variety of life events (some related to the pandemic and some not). In a survey by Chen et al. (2020), seven aspects of mental health were evaluated (mental status, knowledge of stress management, behavioral patterns, risk perception, academic stress, family relationships, and peer relationships) finding that isolation during the COVID-19 pandemic negatively impacted stress and depression symptoms in adolescents. As students feel more isolated and endure more stressful experiences, research has indicated that college-age students experience higher levels of perceived stress, anxiety, and depression (Hoyt et al., 2021; Sorio & Horgos, 2021).

Perceived stress is not just the accrual of stressful experiences. Rather, it is defined as the degree to which a situation in one's life is considered stressful (Cohen & Williamson, 1988). Individual perception of stress is not only linked to mental well-being but also other physical health concerns (Schneiderman et al., 2005; Wirtz & von Känel, 2017) and impacts student life satisfaction (Buser & Kearney, 2017).

As the pandemic concludes, understanding student experience and stress is vital in supporting students and aiding in the recovery from its fallout. While stressful experiences and perceived stress seem inevitable, student resilience is one construct that has the potential to support students as they recover from pandemic-related stress. Resilience is defined as the ability to recover from adversity (Smith et al., 2008). Seen as a dynamic process that

requires adverse events and positive adaptation (Luthar et al., 2000), resilience has been linked with improved academic work habits (Warren & Hale, 2020), decreased stress from ADHD symptomology (Hamilton et al., 2021) and increased self-compassion (Shebuski et al., 2020) among college populations. Further, evidence indicates that resilience is bolstered primarily through the development of protective factors and moderately increased through the alleviation of risk factors (Lee et al., 2013). Recognizing that resilience is a valuable resource to aid students faced with adverse situations, counselors need to understand the relationship between stressful life events, resilience, and the student's perception of stress as the COVID-19 pandemic concludes to help in the recovery from the pandemic and prepare students for future struggles.

PURPOSE

The research team conducted the subsequent study to gain a better understanding of how stressful life events and levels of resilience can explain the perceived stress college students experienced during Spring 2020 during the onset of the COVID-19 pandemic. The researchers hypothesized that these variables would explain a significant amount of variance in the levels of perceived stress during the onset of the COVID-19 pandemic by students in the study. The research was guided by the following three research questions:

Research Question 1:

What are the levels of stressful life events, resilience, and perceived stress experienced by college students during the onset of the COVID-19 pandemic?

Research Question 2:

What is the relationship between stressful life experiences, resilience, and perceived stress during this timeframe?

Research Question 3:

How much variance in college student perceived stress during the onset of the COVID-19 pandemic can be explained by their stressful life experiences and resilience?

METHOD**Procedure**

The research team recruited participants from a mid-sized university in the Southeastern United States, which transitioned to online learning in the middle of the Spring 2020 semester to help stint the spread of disease. Following local stay-at-home orders, many students did not return to the area, and on-campus residents were assigned times to come to campus to collect their belongings as on-campus residencies were closed.

This study took place during the summer of 2020 while the pandemic was ongoing and inquired about the students' perceived stress, life experiences, and resilience during the spring. Upon receiving institutional review board approval, an invitation for participation containing a survey link was sent via email from the second author to the university list of roughly 10,000 students. Once they opened the link, students were brought to the informed consent for the survey delivered via QuestionPro. Participants were required to be 18 years or older to participate. Of the roughly 10,000 students who received the survey link, 437 started the survey, and 312 completed the survey, yielding a response rate of around 3%. The survey was made available in July 2020 and remained available for approximately one month. It took students less than 12 minutes on average to complete the survey.

Measures

After agreeing to the informed consent, students were provided with a demographic questionnaire and three separate instruments to measure stressful life events, resilience, and perceived stress.

Perceived Stress Scale

To assess student stress during Spring 2020 and the emergence of the COVID-19 pandemic in the United States, the research team utilized the Perceived Stress Scale (PSS; Cohen & Williamson, 1988). The PSS scores participant agreement to 10 items on a five-point Likert scale, ranging from 0 (Never) to 4 (Very Often). Some items on the scale are reverse-scored and values are added to calculate a total score. Final scores can range from 0 to 40 with higher scores representing higher levels of perceived stress. The scale was adapted slightly to gauge stress during the previous spring, rather than the past month as the instrument originally evaluated. The PSS demonstrated good internal consistency for the sample with a Cronbach's alpha of 0.90.

Brief Resilience Scale

To assess student resilience, the Brief Resilience Scale (BRS; Smith et al., 2008) was used. The BRS was developed to measure resilience and an individual's ability to recover from stressful circumstances and contains six items to which individuals gauge their level of agreement on a five-point Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree). Three of the items are reverse scored and the final score is the mean across all items. Final scores can range from 1 to 5 with higher scores signifying higher levels of individual resilience. The BRS demonstrated strong internal consistency for this sample with a Cronbach's alpha of 0.87.

Student Stress Scale

To assess students' stressful experiences during the Spring of 2020, the research team included the Student Stress Scale (SSS; Insel & Roth, 1985), which is an adapted version of the Social Readjustment Rating Scale (Holmes & Rahe, 1967). Though similar in name to the PSS, the SSS utilizes 31 items scored on a binary (yes/no) to identify the number of stressful events over a given period (i.e., "I experienced an argument with a close friend"). Each item is assigned a point value

on a scale of 0–100 depending on how stressful the event may be (i.e., the death of a close family member is assigned 100, whereas a minor traffic violation is assigned 20). Though there is some subjectivity to the assignment of point values, the Social Readjustment Rating Scale along with its adaptations remains widely used in psychological research and consistently shows strong relationships with associated health outcomes (Scully et al., 2000). Total scores on the SSS range from 0–1276, with scores in the range of 150 and above indicating higher levels of stressful events endured. The SSS was again adapted to ask students to answer regarding events taking place during Spring 2020. Internal consistency is not reported due to the nature of the assessment tool (i.e., one stressful experience does not require correlation to another).

Participants

Out of the 312 individuals who completed the survey, the majority identified as female (233 female, 75 male, 2 non-binary, and 2 declined to respond). The large majority of participants further identified primarily as white (275 white, 12 other, 10 Black or African American, 9 Asian, 5 American Indian or Alaskan Native, and 1 Native Hawaiian or Other Pacific Islander). Eight participants reported being diagnosed with COVID-19, 86 reported having someone close to them diagnosed with COVID-19, and 9 reported that someone close to them died from COVID-19 during the given timeframe.

Data Analysis

Power Analysis

Using the G*Power, Version 3.1, statistical power analysis software (Faul et al., 2007), the research team conducted an a priori power analysis to determine an appropriate number of participants needed to establish a statistical power of .80 for this research based on an alpha level of .05. A minimum sample size of 68 was identified to detect a moderate effect ($f^2 = 0.15$) between the independent variables (student life experiences measured by the

SSS and student resilience measured by the BRS) and dependent variable (student perceived stress measured by the PSS). Recognizing this, the research team considered the sample of 312 students sufficient to explain the relationship between variables.

Missing Data and Assumptions

In analyzing the responses, cases were screened for missing data. Of the 312 participants who completed the survey, eight cases were identified to be missing data across the three instruments for analysis. These eight cases were removed from the analysis, yielding a final sample of 304 participants.

After removing missing data, the research team assessed the underlying assumptions for stepwise multiple regression. The researchers assessed for normality by analyzing the skewness and kurtosis of variables, developed and reviewed residual plots to check for linearity and homoscedasticity, and addressed multicollinearity by reviewing the variance inflation factors between the independent variables (SSS and BRS). After a thorough review of the preliminary analyses, the research team determined that the model was appropriate for the analysis as outlined in this study.

Analysis

Utilizing SPSS Statistical Software (Version 23.0), the researchers computed descriptive statistics for each instrument used in this study. Next, the research team examined correlations between variables. Finally, the researchers conducted a stepwise linear regression to assess the predictive ability of the independent variables (stressful life experiences and resilience) on the identified dependent variable (perceived stress).

RESULTS

Research Question 1: What are the levels of stressful life events, resilience, and perceived stress experienced by college students during the onset of the COVID-19 pandemic?

To answer the initial research question, the research team analyzed levels of stressful life events, resilience, and perceived stress among the sample. The researchers computed means, standard deviations, ranges, and alpha coefficients for each

instrument (shown in Table 1). When comparing the means of this sample to norms for the instrument provided, the sample demonstrated higher levels of stressful events, perceived stress, and lower levels of resilience than norms.

Table 1			
<i>Descriptive Statistics for SSS, BRS, and PSS</i>			
Instrument	Mean	St. Deviation	Range
SSS	234.10	117.43	0–552
BRS	3.29	.79	1–5
PSS	21.21	7.55	2–39

Notes: $n = 304$
 SSS- Student Stress Scale | BRS- Brief Resilience Scale | PSS- Perceived Stress Scale

Specifically, scores for the SSS were classified within the high range ($M = 234.10$). The mean for the PSS was significantly higher with a mean of 4.43, 95% CI [3.58 to 5.28] than a PSS score for individuals less than 25 years of age in 2009 of 16.78 (Cohen & Janicki-Deverts, 2012), $t(303) = 10.24, p < 0.01$. Further, the mean score of the BRS was significantly lower with a mean of -0.24, 95% CI [-0.33 to -0.15], than a BRS score of traditional undergraduate students of 3.53 (Smith et al., 2008), $t(303)=5.30, p < 0.01$.

Research Question 2: What is the relationship between stressful life experiences, resilience, and perceived stress during this timeframe?

To address the second research question, the researchers utilized a series of Pearson-product moment correlations to assess the relationships between the variables within the study. The results of this series of correlations are displayed in Table 2. Each variable demonstrated a statistically significant correlation with other variables included in the study. Student stressful life experiences demonstrated a statistically significant positive correlation with perceived stress ($r = 0.53, p < 0.01$). Student resilience showed statistically significant negative correlations with both student stressful life experiences ($r = -0.39, p < 0.01$) and student perceived stress ($r = -0.60, p < 0.01$).

Table 2			
<i>Pearson-Product Correlations for the SSS, BRS, and PSS</i>			
Instrument	1	2	3
SSS	-		
BRS	-.392*	-	
PSS	.528*	-.603*	-

Notes: *- $p < .01$
 $n = 304$

Research Question 3: How much variance in college student perceived stress during the onset of the COVID-19 pandemic can be explained by their stressful life experiences and resilience?

To address the third research question, the researchers executed a stepwise linear regression analysis, to understand the predictive ability of the independent variables on the dependent variable of interest, student perceived stress. The independent variables were added stepwise in two steps as displayed in Table 3. In the initial step, student stressful experiences explained 27.9% of the

variance in student perceived stress during the onset of the COVID-19 pandemic, $F(1,302) = 116.74, p < 0.01$. In the subsequent step, student resilience was added to the model, with the independent variables explaining 46.4% of the variance in student perceived stress during the onset of the COVID-19 pandemic, $F(2,301) = 130.02, p < 0.01$. It is important to note the inclusion of student resilience in the model resulted in a substantive change in the predictive ability of the model ($\Delta R^2 = .185$).

Table 3					
<i>Summary for Stepwise Linear Regression Analysis</i>					
<i>Results for Variables Predicting Student Perceived Stress During the Onset of the COVID-19 Pandemic</i>					
Step and Variable	β	t	R	R^2	ΔR^2
Step 1			.538	.279	.279
SSS	.034	10.81*			
Step 2			.681	.464	.185
SSS	.022	7.51*			
BRS	-4.476	-10.18*			
Notes: $n = 304$ * - $p < .01$					

DISCUSSION

In this empirical investigation, the research team assessed a sample of 304 students from a Southeastern university to understand the level of stressful life events, resilience, and perceived stress they experienced during the onset of the COVID-19 pandemic. Further, the researchers investigated the relationships among the variables, analyzing the effects of stressful life events and resilience levels on perceived stress. The students in this study disclosed a substantial number of stressful life events during the Spring of 2020 and demonstrated lower levels of resilience than historical college samples (Smith et al., 2008) while displaying

higher levels of perceived stress than previous samples of individuals less than 25 years of age (Cohen & Janicki-Deverts, 2012). The findings in this study indicate that the COVID-19 pandemic had a significant effect on students, both through the number of stressful experiences they accrued and the levels of stress that they experienced. While increases in stress and stressful life experiences during a global pandemic were expected by the researchers, the lower levels of resilience present a concerning finding for a sample in an important developmental phase of life. With transitions to online learning and stay-at-home orders, there is the potential that students experienced significant decreases in social support and connection which

show strong correlations to resilience (Guo, 2018; Lee et al., 2013). These lower levels of resilience have concerning implications for both life satisfaction (Guo, 2018) and academic achievement (Johnson et al., 2014).

When examining the correlations and results of the stepwise linear regression between variables, both stressful life events and resilience were predictive of student-perceived stress during the onset of the COVID-19 pandemic and predicted 46.4% of the variance in perceived stress when combined ($p < 0.01$). Important to note is the predictive ability of stressful life events decreased, from a beta coefficient of .34 ($p < 0.01$) in the initial step to .22 ($p < 0.01$) in step two as the researchers added student resilience within the equation. Another important finding from the regression equation is the amount of variance unexplained by the independent variables. While the researchers included instruments about individual stressful life experiences and individual resilience, no instrument was provided to gauge the existential and societal stress created by the COVID-19 pandemic. This unexplained variance is potentially attributable to the chronic and cumulative stress created by the COVID-19 pandemic and existential concerns therein.

Implications

These findings present important implications for counselors. First and foremost is that students are dealing with high levels of stress and stressful life experiences. Similar to other findings (Shebuski et al., 2020), the stressful life events that the college students in this sample experienced were correlated with increased perceived stress. College counselors must recognize this high number of stressful life experiences and respond accordingly. Schwitzer (2004) highlights the value of increased focus on psychoeducation, outreach, and brief intervention for college counselors when responding to large-scale traumatic incidents on campus, reiterating how important ongoing collaboration and consultation will be. Specifically, colleges could

benefit from outreach programs including mental health screening for new enrollees at the beginning of each new semester. Ongoing training could be provided for advisors and residence life personnel regarding signs and symptoms of mental health symptomology, as well as implementation of bystander intervention programs specifically focused on mental health symptoms. Additionally, colleges would benefit from tiered levels of mental health support across campus to extend the reach of mental health services beyond college counseling centers. The levels could include peer mentorship programs, brief therapeutic interventions focused on college readiness and adjustment, and peer support groups focused on assimilation into college life. While not a campus-specific incident, these approaches will be impactful as the COVID-19 pandemic concludes as college students have universally dealt with significant traumas over the past three years. These tiered levels of support will provide a higher level of support to all students on campus but will also reduce the burden placed on college counseling centers providing them more opportunities to serve the students on campus with the highest level of mental health symptomology.

Further, research indicates that increased social connection (Dailey et al., 2023) and higher levels of sense of belonging (Sorio & Horgos, 2021) are related to lower levels of psychological distress and will be vital in recovering from the mental health struggles stemming from COVID-19. Outreach strategies focused on connection, engagement, and belonging will be beneficial as campuses pursue ways to rebuild the community after COVID-19. Colleges need to think about the development of both traditional strategies for creating connection and engagement on campus (i.e., student groups, recreation activities, athletics) and unique, creative ways to engage students and foster resilience. Two such models are faculty-in-residence programs (Healea et al., 2014) and counselor-in-residence programs (Orchowski et al., 2011). In both of these examples, either faculty members or counselors (or counseling graduate students in some cases) are

embedded directly into student residence halls and can have a profound effect on the student's connection and meaningful relationships with the institution (Healea et al., 2014) and also support the students and ease the burdens on college counseling centers (Orchowski et al., 2011).

Another concern for college counselors based on these findings is the lower levels of student resilience displayed in the sample. When conceptualizing resilience as a response to overcoming adversity, it may suggest that the students are struggling to adapt to the challenges posed by the pandemic and may continue to struggle with increased stress until they can adapt to the changes from the pandemic. Recognizing these lower levels of resilience, counselors need to take steps to strengthen student resilience in response to pandemic-related stress. According to Lee et al. (2013), counselors can aid their students by helping them to adapt to the adversity posed by the pandemic by developing new connections and support systems, establishing a new sense of control amid the changing landscape, and adjusting personal habits appropriately to harbor greater resilience within our students. Within counseling sessions applying existential theoretical orientations could aid clients in developing a sense of meaning and purpose behind their struggles and finding ways to adapt to the changing landscape. Additionally, techniques like motivational interviewing (Miller & Rollnick, 2013) could be beneficial in helping students adapt to changes in the environment and motivating them to develop new connections across campus. Similar to addressing the widespread trauma that has been created by the pandemic, counselors should focus on outreach, collaboration, and consultation as they support their universities and institutions in fostering resilience (Hartley, 2010) by utilizing the interventions and strategies highlighted above.

While COVID-19 may no longer be considered a public health emergency, researchers have indicated that in the current world environment,

there is a threefold likelihood of the emergence of extreme epidemics in any given year (Marani et al., 2021). Recognizing that there is the potential for future disruptions due to similar circumstances institutions of higher education need to be mindful of how they structure the university system to accommodate for such challenges. While many universities were able to pivot to online learning, there were other aspects of the college experience that did not adjust as easily. There is evidence that the pivot to telehealth provided benefits to college students (Cohen et al., 2022). Institutions should retain this infrastructure and counseling centers specifically should maintain a digital presence to accommodate student preferences and prepare for future disruptions to the learning environment.

One final implication from this research regards the variance left unexplained by the regression. While the combination of stressful life experiences and individual resilience explained a portion of the variance in perceived stress, over half of the variance was left unexplained. This suggests that other significant factors may be contributing to the perceived stress these students were experiencing. As noted in the discussion, no instrument was provided to address the existential/cumulative stress caused by the pandemic. Consistent with previous literature related to disaster and crisis response surrounding the 9/11 terrorist attacks (Otto et al., 2007) and Hurricane Katrina (Davis et al., 2010; LaJoie et al., 2010), these global and existential threats posed by the COVID-19 pandemic – displacement from the learning environment, and consistent media exposure – may be actively contributing to the levels of stress that the students were experiencing. Counselors could benefit from integrating aspects of humanistic and existential counseling modalities into their practice to help clients gain increased awareness.

Limitations

It should be noted that there are some limitations with the current study; primarily, the homogeneity

of the sample and issues with participant recall. The sample outlined in this study was drawn from one Southeastern university and was primarily composed of white, female participants. While the sample is large enough to generate the necessary power, replication of the study at other universities with more diverse samples would be merited. Additionally, the survey requested participants refer to their experiences from two months before completing the survey. Though some data would indicate that participant recall is accurate when referring to noteworthy events, like childbirth (Batterdene et al., 2013), there is still likely some drift in answers due to errors in participant recall.

Directions for Future Research

Despite these limitations, the study at hand displays important findings for college counselors and has valuable implications for further research. Follow-up studies regarding the stability of the constructs discussed, particularly resilience and perceived stress, would be valuable to the body of literature and provide further understanding regarding how students are functioning during the COVID-19 pandemic. Specifically, did students develop improved resilience to pandemic-related stressors, and did perceived stress decrease or increase as the public recognition of the pandemic concludes? Additionally, there would be value to qualitative inquiry into the students' subjective experience of

global/existential stress college students experienced during the pandemic.

CONCLUSION

College students demonstrate high levels of stress as they acclimate to life in institutions of higher education (Aspelmeier et al., 2012). These levels were impacted by the COVID-19 pandemic during the spring 2020 semester. The pandemic led to significant physical and psychological outcomes for the world (Gheybreysus, 2020; Johns Hopkins University, 2023), and many institutions transitioned from traditional learning environments to virtual environments (Davidson College, 2020). The results from this study indicate that college students experienced a high volume of stressful experiences, lower levels of resilience, and high levels of perceived stress compared to previous samples. College counselors should be mindful of both the direct and indirect effects that the pandemic has had on the students with whom they work. Counselors would be best served by promoting protective factors, such as improving self-esteem and self-efficacy, providing increased social support, and assisting clients in developing increased understanding and meaning by integrating aspects of an existential framework into their practice.

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