


The protective role of sense of community and access to resources on college student stress and COVID-19-related daily life disruptions

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Abstract

The aim of our study was to understand more about how college students have been impacted by the pandemic and how their universities can better support them by emphasizing protective factors that build resilience. The protective factors we explored were sense of community, perceived adequacy of resources, and perceived social support. We conducted an online survey, which was administered to 296 (70.4% female and $M_{\text{age}} = 20.34$) students from a private Northeastern University in the United States. There were gender and class year differences found after analysis. In addition, sense of community and perceived adequacy were found to be statistically significant. There were gender and class year differences found after analysis. In addition, sense of community and perceived adequacy were found to be statistically significant. Overall, our findings highlight the importance of sense of community and access to resources as protective factors in mitigating stress and coronavirus disease 2019-related disruptions to daily life among college students, particularly for female students who report more adverse outcomes.

KEYWORDS

access to resources, college students, COVID-19, sense of community, stress, disruptions to daily life, protective factors

1 | INTRODUCTION

The coronavirus disease 2019 (COVID-19) pandemic has affected the lives of people in so many ways. These include physically, mentally, socially, and economically. According to the WHO (2021), as of June 2021, approximately 179.7 million people around the globe had been infected, and almost 3.9 million people had died from the virus. The changes implemented to lower the spread of the virus have also had adverse side effects such as disruptions to daily life, social interactions, academics, employment, and other activities people partake in. Additionally, the pandemic has increased fear, anxiety, stress levels, and negative emotions (Umuru & Lee, 2020). Several studies have been carried out on the impact of the COVID-19 pandemic on various populations such as parents, healthcare workers, people with disabilities, LGBTQ, people with pre-existing health conditions, and others. However, there has been limited research on college students during this pandemic. Nonetheless, college students have not been exempted from the impacts of the pandemic. A study by Son et al. (2020) found that college students have been considerably impacted by the COVID-19 pandemic, as it has negatively affected their academics, health, and lifestyle. The results of this study showed that a large number of the participants had exacerbated levels of stress and anxiety as a result of the COVID-19 pandemic. Our present study expands on this study to understand how college students have been impacted and how universities can better support them.

As a result of the COVID-19 pandemic, there have been disruptions to practically all U.S. social institutions; the educational institutions, economic institutions, and the healthcare system have all been disrupted directly or indirectly. It has also brought to light the gross social inequities in the system, as particular social groups are more adversely affected by the pandemic than others (Bambra et al., 2020; Kim & Bostwick, 2020; Thakur et al., 2020). Schools and businesses were closed down, lockdown orders were placed, and people were forced to stay indoors to curtail the spread of the virus. These events resulted in hundreds of jobs being lost, food insecurity, and lack of access to healthcare, and social isolation as loved ones were kept apart from each other. These disruptions at the systems level have had direct and indirect consequences at the individual level. This pandemic not only posed a threat to individuals' physical health, but it has also threatened their overall well-being and every aspect of their lives. Studies show that as the COVID-19 crisis increased, people reported an increase in levels of stress, anxiety, depression, poor sleep, intrusive thoughts, and negative coping habits (Wang et al., 2020). Daily routines (e.g., eating, exercising, sleep patterns, to name a few) have also been affected as everyone tries to adjust to the new way of life. According to the (CDC, 2020), the COVID-19 pandemic has led to considerable personal and universal social stress for all individuals. This stress is associated with probable infection, illness, possible loss of loved ones to the virus, potential job loss and financial instability, social isolation, and uncertainty about the future (Xiong et al., 2020).

The COVID-19 global pandemic has had a monumental impact on colleges and universities across the world. The disruptions to higher education institutions have significantly impacted the lives of college students. Classes were transferred online, students had to return to homes that may not have been safe, and there were added financial burdens and disruptions to daily life and routine behaviors. Results from a study by Tasso et al. (2021) showed that college students at a U.S. university reported that the COVID-19 pandemic had significantly disrupted their daily routines. All students experienced the shift from in-person classes to remote learning, which was a difficult transition for some students. College students living in the residence halls had to return to their family homes, while some students had nowhere to return. In addition to all these concerns, working college students lost their jobs due to the pandemic, adding to the challenges they were already facing due to COVID-19.

The disruptions experienced by college students could add to the stress and challenges this population was already at risk for before the pandemic. College students have been shown to have higher rates of psychological distress in comparison to other populations (Eskin et al., 2016). According to a 2011 national research survey organized by the American College Health Association (2011), stress predisposes students to emotional and social difficulties. It is usually reported as the foremost barrier to students' academic success. A survey conducted by the APA (2020) reported that the possible long-term effects of the COVID-19 pandemic are especially severe on teens and young adults (18–23), with this population reporting an increase in stress and symptoms of depression. A study

by Charles et al. (2021), evaluated the effects of COVID-19 disruptions on college students. Participants were divided into two groups and were compared on their stress and anxiety levels pre-COVID-19 and during the current pandemic. Measures assessing perceived stress, coping, and psychological symptoms were collected from a group of 240 students in Fall 2019 before the COVID-19 pandemic as a part of a more extensive study on health risks. A second group of 148 students also completed the same measures in the Spring and Fall of 2020 after the pandemic had begun. Participants who completed the measures during the pandemic reported higher levels of perceived stress, mood disorder symptoms, and alcohol use compared to students who completed the measures before the start of the COVID-19 pandemic. The research seems to suggest that the COVID-19 pandemic has intensified the stress levels of college students and therefore poses a threat to their physical and mental well-being, as well as their education (Khan et al., 2020; Son et al., 2020).

Despite all these disruptions and outcomes, there are certain protective factors that can serve as buffers against the negative consequences of the COVID-19 pandemic. Protective factors are positive variables that negate the effects of risk factors and thus safeguard against negative outcomes (Loukas et al., 2006). Protective factors are referred to as protective because they abate the harmful effects of risks that predict behavioral health outcomes (Zimmerman, 2013). Protective factors are advantageous in that they could prevent the impact of adverse behavioral outcomes that result due to being exposed to risk factors, giving opportunity for the individual's personal development (Mosavel et al., 2015). Protective factors can be found in parental support, peer support, social connectedness, one's belief, and faith, along with so many other variables (S. Sharma et al., 2019; Zimmerman, 2013). For some students, engaging with peers in school was a protective factor against negative outcomes (V. Sharma et al., 2020); however, due to the pandemic, this was disrupted, leaving students with one less factor to mitigate against the negative consequences of COVID-19. This study examined three positive variables that have been shown to be effective protective factors: sense of community (SOC), access to resources, and social support.

1.1 | Sense of community

SOC is as:

a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that member needs will be met by their commitment to be together. (McMillan & Chavis, 1986, p. 9)

McMillan and Chavis (1986) proposed four elements to support this definition: Membership, influence, integration and fulfillment of needs, and shared emotional connection. Membership refers to the feeling of having invested oneself in a group as a member and therefore having a sense of belongingness. Influence denotes a sense of mattering, of being able to impact a group and the group likewise shaping its members. The third element, integration and fulfillment of needs, is the feeling that the members' needs would be met through or by the group. Lastly, shared emotional connections refer to the shared history, shared traditions, and shared experiences that members have or will have (McMillan & Chavis, 1986). Hobfoll et al. (2002, as cited in Greenfield & Marks, 2010) proposed that having a strong SOC might protect against some of the long-term consequences of adverse childhood experiences. Individuals who build strong bonds with their community might develop a sense of empowerment and resilience as they view themselves as part of an interconnected social network. A strong SOC has been found to promote positive mental health in adults regardless of whether they have experienced negative events or not (Greenfield & Marks, 2010). Studies have shown that SOC aids in building resilience among individuals who have experienced childhood trauma (Banyard & Williams, 2007; Thomas & Hall, 2008; Valentine & Feinauer, 1993). This variable has also been found to build resilience in military veterans who have returned from combat zones and

have difficulties adjusting to their new environments (Thomas & Bowie, 2016; Wombacher et al., 2010). SOC has likewise been found to improve the health of individuals in the workplace as it reduces stress due to work demands and strengthens the workers coping ability (Klein & D'Aunno, 1986).

Among college students, SOC has been shown to be a positive predictor of student persistence (Jacobs & Archie, 2008). In their study on the psychological SOC and college student burnout, McCarthy et al. (1990) found that SOC was significantly and negatively related to psychological symptoms resulting from burnout. McNally et al. (2021) studied college students' grief, and found that SOC, especially the dimensions of integration and fulfillment of needs and shared emotional connection, served as a protective factor in helping the students deal positively with their grief and the negative outcomes associated with grief. The present study explores if SOC might also be a protective factor for college students during the pandemic.

1.2 | Access to resources

One of the many things the COVID-19 pandemic has affected is resources and the ability to access them (Núñez et al., 2021). There is limited access to healthcare, inadequate financial resources, and a strain on social and community resources. The availability of resources is significant as it promotes positive outcomes (CDC, 2018). Access to resources has been shown to promote positive adaptation and diminish negative mental health outcomes among individuals and communities who have experienced disasters, whether man-made or natural (Zakour, 2019). Individuals and communities who had access to resources were less anxious and more prepared for a disaster, thereby reducing the negative consequences of such events (Abramson et al., 2014; Mishra & Suar, 2011). This variable has been found to also be effective among Latino day laborers who experienced psychological distress due to racial discrimination. Workers who had access to cultural and community resources were less stressed, as having those resources mitigated the effects of discrimination (Organista & Ngo, 2019).

Perceived adequacy of resources has also been significantly related to individual well-being (Dunst et al., 1988). In particular, access to mental health and community resources is essential in reducing the risks of mental health problems and promoting overall well-being in vulnerable populations (Williams & Rheingold, 2014). College students are considered a vulnerable population as they are at risk for poor outcomes and negative health consequences due to their developmental stage, sociocultural status, and other factors (Balon et al., 2015; Ponsford, 2016). Therefore, the ability to access resources that would help them negate the effects of the current pandemic is imperative. For example, students with adequate financial resources are more resilient and more likely to develop positive personal qualities such as hope and positive affect than students with inadequate financial resources (Karairmak & Sivas, 2011). The present study will explore if perceived access to resources impacts students' stress and daily life disruptions and if access to certain types of resources have more of an impact than access to others.

1.3 | Social support

Social support is essential in preserving physical and mental health; research has shown that in high quantities, this factor protects against stress and enhances well-being (Ozbay et al., 2007). Social support can be classified into perceived or received types. Perceived support refers to an individual's potential access to social support, whereas received social support refers to the actual receipt of support (Samuel & Burger, 2020). This study focuses on the former variable and only investigates for perceived support. A study of Chinese adolescents on the effect of social support on mental health during the COVID-19 pandemic revealed that adolescents with high levels of social support reported fewer depressive and anxiety symptoms (Qi et al., 2020). In addition, Asians and Asian Americans who faced discrimination due to the COVID-19 outbreak and its alleged origin reported that social support served

as a buffer that helped mitigate the negative effects of racial discrimination (Lee & Waters, 2020). Another study (Yu et al., 2020) found that increased social support significantly correlated with a reduction in psychological distress during the pandemic, thereby highlighting the relevance of social support during times such as these. For college students, previous research has found that having high levels of social support has a positive effect on their well-being and predicts academic success (Tinajero et al., 2019). The present study explored if these protective effects of perceived social support were apparent for a sample of college students during the pandemic.

2 | PRESENT STUDY

Based on the above research, the present study explored if these protective factors—SOC, access to resources, and social support—impact COVID-19-related disruptions to daily life and perceived stress among college students. We were also interested in examining the potential moderating role of gender, ethnicity, class year, and student status (residential or commuter) variables. There is evidence that the COVID-19 pandemic has disproportionately affected some racial and minority groups. Social inequities such as poverty, lack of access to healthcare, and discrimination affect these groups, thereby predisposing them to risks and negative health outcomes (CDC, 2020). The study explored if these differences were relevant to the COVID-19-related-stress and disruptions to daily life in college students at a private Northeastern university in the United States. The findings of this study can help identify protective factors for coping with the COVID-19 pandemic, which would be used to inform intervention strategies and programs aimed at college students during this pandemic, as well as larger university policies and procedures.

We expected that SOC, access to resources, and social support would serve as a buffer to COVID-19-related-stress and disruptions to the daily lives of college students. The following hypotheses were explored:

1. Greater perceived access to resources will be negatively correlated with perceived stress levels and COVID-19-related daily life disruptions.
2. A stronger SOC to the university will be negatively related to perceived stress and COVID-19-related disruptions to daily life.
3. Increased level of perceived social support will be negatively related to perceived stress and COVID-19-related disruptions to daily life.
4. Demographic variables such as gender, ethnicity, class year, and residential status would also have an influence on college students' perceived stress and COVID-19-related daily life disruptions, even when the predictor variables are included in the models.

3 | METHODS

3.1 | Participants

The target population for this study was college students in a small private school in the Northeastern United States. Participants were recruited through school emails and the Intro to Psychology participant pool. The survey was created through Qualtrics, and a link for the survey was generated and emailed to students through Graduate Students Services, Recognized Student Organizations, and the Psychology Department. As an incentive to participate in the study, participants were given the opportunity to provide their email addresses to be entered into a drawing for a chance to win a \$100 gift card of their choice. First-year students taking the PSYC 1111/1112 course were offered course credit for participating in the study. The final sample of the study included 296 college students. Participants ranged from 18 to 53 years of age ($M = 20.34$; $SD = 4.01$). First-year students comprised 49.5% of the participants, 12.3% were sophomores, 7.9% were juniors, 12.6% were seniors, and 17.7% were

graduate students. Of the participants, 57.4% were residential students, and 42.6% were commuters. Regarding gender, 70.4% of the participants were female, 27.8% were male, 7% were transgender, and 1.1% chose the option "Other." Of those who reported their race or ethnicity, 61.5% identified as White, 10.5% Black or African American, 2.2% Asian or Pacific Islander, 12.7% Hispanic or Latinx, 2.9% Indian or Southeast Asian, and 8.7% identified as Biracial or Bicultural. Therefore, the participants were mainly white students (62.4%, $n = 169$) compared to students of color (37.6%, $n = 102$).

3.2 | Measures

This was a cross-sectional survey study with three independent variables: SOC, perceived adequacy of resources, and perceived social support. The two dependent variables included perceived stress and disruption to daily life as a result of the COVID-19 pandemic.

SOC was measured using the Brief Sense of Community Scale (BSCS), which has been found to have a strong internal consistency ($\alpha \geq 0.92$) and test-retest reliability (Peterson et al., 2008). This scale comprises eight items designed to measure SOC across four dimensions: group membership, influence, needs fulfillment, and emotional connection. The scale used a 5-point, Likert-type response option format ranging from *Strongly Disagree* to *Strongly Agree*. Responses can range from 8 to 40, with higher scores indicating a higher SOC. In addition, the BSCS has sample items such as "I feel connected to the school community."

Perceived adequacy of resources was measured using the Perceived Adequacy of Resources Scale (PARS). The scale has been found to have a strong internal consistency ($\alpha \geq 0.89$) and high internal reliability of 0.87 (Rowland et al., 1985). This questionnaire is made up of 28 items that are designed to measure perceived adequacy of resources that contribute to the quality of life of an individual or family. A perception of inadequate resources indicates a lack of access to resources (Hannan et al., 2016). The scale assesses seven distinct resources: physical environment, health/physical energy, time, financial, interpersonal, knowledge/skills, and community resources. Each subscale consists of four items with the response option format ranging from *Strongly Disagree* (1) to *Strongly Agree* (7). The possible range of scores is from 28 to 196, with high scores indicating higher perceived adequacy of resources. The PARS had sample items such as "Government programs in my community are available to help me."

Perceived social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS). The scale's internal consistency ranges from 0.85 to 0.91, with test-retest reliability values ranging from 0.72 to 0.85 (Zimet et al., 1988). This tool is used to measure the perceptions of the adequacy of support from three sources: family, friends, and significant others. It consists of 12 items with 4 items in each subscale. The scale used a 7-point, Likert-type response option format ranging from *Very Strongly Disagree* to *Very Strongly Agree*. The possible total score ranges 12–84, with high scores indicating high perceived social support. In addition, the MSPSS has sample items such as "I get the emotional help & support I need from my family."

Stress was measured using the Perceived Stress Scale (PSS), which is the most widely used psychological instrument to measure the perception of stress. It has a strong internal consistency of 0.87 (Cohen et al., 1983). This scale consists of 10 items and is designed to measure global perceived stress within the last month on a 5-point Likert type scale ranging from *Never* (0) to *Very Often* (4). Four out of 10 items were worded and scored in the reverse direction. Individual scores on the PSS can range from 0 to 40, with higher scores indicating higher perceived stress. The PSS-10 had sample items such as "In the last month, how often have you been upset because of something that happened unexpectedly?"

Disruption to daily life as a result of COVID-19 was measured using the RAND (American Life Panel Survey: Carman & Nataraj, 2020). No reliability information is provided yet for this measure. The subscale on disruption to routine behaviors was selected to assess how much the COVID-19 pandemic has affected routine activities and behavior since its start. This subscale was adapted from Parks et al. (2017). The 10 items on the scale vary across behaviors such as sleeping, eating, exercise, and daily interactions. The response option ranges from *Not at All* (1) to

Totally (5). Responses can range from 10 to 50, with higher scores indicating a higher disruption to routine behaviors. The RAND had sample items such as "Since the coronavirus (COVID-19) outbreak first started, how much has it prevented you from taking care of your usual daily chores?"

In the demographic part of the survey, participants were asked their age, gender identity, ethnicity, class year, student status (as of Fall 2020), and socioeconomic status. These demographics were used to explore potential moderating variables.

3.3 | Procedure

The participants completed a secure and confidential Qualtrics survey using a link sent in an email that informed them of the study and requested their participation or through a separate system for students taking an Intro to Psychology course. Upon clicking the link, the informed consent was presented, and the participants were asked to provide or decline consent to proceed with the survey. Upon choosing to participate, participants were directed to the sense of community scale (BSCS), followed by social support (MSPSS), adequacy of resources (PARS), stress (PSS), the RAND, and finally, the demographics section. At the end of the survey, participants had the opportunity to enter their email for a chance to win a \$100 gift card of their choice. The participants were not obliged to enter their email, and their email addresses were not linked to their responses on the survey. The email addresses were deleted right after the drawing was carried out, and a winner was chosen. There was a minimal risk for participants completing the survey; nonetheless, stress management resources were provided at the end of the survey. Participants were encouraged to make use of the resources.

4 | RESULTS

4.1 | Preliminary analysis

The participants in the study consisted mainly of first-year students ($n = 137$) with a higher number of female students in comparison to male students with a ratio of 70.4% ($n = 195$) to 27.8% ($n = 77$). The study participants consisted mainly of white students 62.4% ($n = 169$) while students of color were 37.6% ($n = 102$).

Of those who participated in the study, 99.6% ($n = 276$) reported that the COVID-19 outbreak had disrupted their lives to varying degrees. The participants' feelings of stress within the past month were assessed using the PSS-10. A mean score of 31.56 ($SD = 7.46$) was generated, suggesting that stress levels were relatively high when the possible range was considered. The mean SOC score was 29.02 ($SD = 6.30$). The mean score for social support was 61.44 ($SD = 12.21$), indicating that the participants in the study experienced relatively high levels of support when the possible range was considered. Finally, the PARS had a mean score of 135.73 ($SD = 26.64$).

To investigate if the variables being explored were correlated to each other, bivariate correlations were conducted. The results showed that all the variables were correlated to each other, with perceived stress being significantly negatively correlated with SOC ($r = -0.371$, $p < 0.05$), perceived social support ($r = -0.322$, $p < 0.05$), and perceived adequacy of resources ($r = -0.611$, $p < 0.05$), indicating that as these latter variables increased, perceived stress scores decreased. However, perceived stress was positively correlated with disruptions to daily life as a result of the COVID-19 pandemic ($r = 0.444$, $p < 0.05$), suggesting that as disruption to routine behaviors as a result of the COVID-19 pandemic increased, perceived stress scores also increased.

Potential moderating variables were examined, and as a result, several independent t -tests were conducted. First for gender, the results showed that female students had significantly higher stress level scores ($M = 32.93$; $SD = 7.33$) in comparison to male students ($M = 27.62$; $SD = 6.69$; $t(270) = 5.30$, $p = 0.00$). The independent t -test also showed that female students had lower scores in perceived adequacy of resources ($M = 130.54$; $SD = 26.35$),

compared to male students ($M = 150.14$; $SD = 22.60$; $t(270) = -19.60$, $p = 0.00$). In addition, female students had significantly higher scores in disruption to routine behaviors as a result of the pandemic ($M = 31.28$; $SD = 8.59$) compared to male students ($M = 26.89$; $SD = 8.93$; $t(270) = 2.61$, $p < 0.05$). There was no significant difference between female students and male students when it came to SOC and perceived social support. However, these results should be interpreted with caution due to the uneven distribution of the groups as there were more female participants than male participants.

Class year was also explored using independent samples t -tests to examine potential differences between underclass students (first-year students and sophomores) and upper-class students (juniors and seniors). There was a statistically significant difference found between the perceived stress scores of underclass students ($M = 31.05$; $SD = 7.73$) and upper-class students ($M = 33.60$; $SD = 6.63$; $t(226) = -2.54$, $p < 0.05$), suggesting that upper-class students perceived higher levels of stress compared to underclass students. There was also a significant difference between the perceived adequacy of resources scores of underclass students ($M = 139.80$; $SD = 26.29$) and upper-class students ($M = 127.91$; $SD = 27.76$; $t(226) = 11.89$, $p > 0.05$), suggesting that upper-class students perceive that they have lower adequacy of resources. Likewise, there was a statistically significant difference between the disruption to routine behavior scores of the participants, with upper-class students having higher scores ($M = 33.93$; $SD = 8.64$) than underclass students ($M = 29.77$; $SD = 8.34$; $t(226) = -4.16$, $p < 0.05$), indicating that upper-class students experienced more disruption to routine behaviors as a result of the COVID-19 pandemic compared to underclass students. Similarly, these results should be interpreted with caution due to the uneven distribution between both groups as underclass students were a significantly larger portion of our participants.

Independent t -tests that examined the differences based on residential status showed that there was a significant statistical difference between the SOC of residential students ($M = 29.80$; $SD = 6.06$) and that of commuter students ($M = 28.01$; $SD = 6.53$; $t(275) = 1.79$, $p < 0.05$). This suggested that residential students reported experiencing a higher SOC compared to students who commute. There were no significant differences between residential groups on perceived stress, perceived social support, perceived adequacy of resources, or disruption to routine behaviors.

Finally, differences based on participants' ethnicity were examined. Because the majority of participants were White, for these analyses they were classified into two groups: White students and students of color. An independent t -test was conducted to examine the differences between the groups. The results showed that there was no statistical difference between White students and students of color on any of the variables.

4.2 | Main analyses

4.2.1 | Multiple regression

Two multiple regressions analyses were conducted to examine the relationship between the predictor variables—SOC, perceived social support, and the perceived adequacy of resources—with each of the dependent variables: perceived stress and disruption to routine behavior as a result of the COVID-19 pandemic. Tables 1 and 2 summarize the descriptive statistics and analysis results. The multiple regression model with all three predictors for perceived stress was significant overall ($R^2 = 0.389$, $F(3, 274) = 58.19$, $p < 0.01$), indicating that the three predictors account for 39% of the variance in perceived stress: SOC, perceived social support, and the perceived adequacy of resources. SOC and the perceived adequacy of resources had significant negative regression weights. Perceived adequacy of resources played a more significant role in predicting perceived stress ($\beta = -.543$, $p = 0.00$) than SOC ($\beta = -0.133$, $p = 0.01$). The results indicate that students with higher scores on these scales were expected to experience lower levels of perceived stress

TABLE 1 Summary of multiple regression analyses for variables predicting perceived stress in college students

Variable	B	SE B	β	95% CI		p
				LL	UL	
Constant	57.64	2.24		53.23	62.04	0.00
BSCS	-0.16	0.06	-0.13*	-0.28	-0.04	0.01
PARS	-0.15	0.02	-0.54**	-0.18	-0.12	0.00
MSPSS	-0.12	0.03	-0.03	-0.08	0.05	0.63
R^2	0.39					
F	58.19					

Note: $N = 277$.

Abbreviations: β , standardized coefficients beta; B, unstandardized coefficients; BSCS, Brief Sense of Community Scale; CI, confidence interval; LL, lower limit; MSPSS, Multidimensional Scale of Perceived Social Support; p, p-value; PARS, Perceived Adequacy of Resources Scale; SE B, unstandardized coefficients standard error; UL, upper limit.

* $p < 0.05$; ** $p < 0.01$.

TABLE 2 Summary of multiple regression analyses for variables predicting disruption to routine behaviors as a result of the COVID-19 pandemic among college students

Variable	B	SE B	β	95% CI		p
				LL	UL	
Constant	47.56	3.07		41.51	53.61	0.00
BSCS	0.05	0.09	0.04	-0.12	0.22	0.53
PARS	-0.14	0.02	-0.45**	-0.18	-0.10	0.00
MSPSS	-0.01	0.05	0.01	-0.08	0.10	0.85
R^2	0.17					
F	18.19**					

Note: $N = 276$.

Abbreviations: β , standardized coefficients beta; B, unstandardized coefficients; BSCS, Brief Sense of Community Scale; CI, confidence interval; LL, lower limit; MSPSS, Multidimensional Scale of Perceived Social Support; p, p-value; PARS, Perceived Adequacy of Resources Scale; SE B, unstandardized coefficients standard error; UL, upper limit.

* $p < 0.05$; ** $p < 0.01$.

(suppressor effect) after controlling for other variables in the model. Perceived social support did not contribute to this multiple regression model (see Table 1).

The multiple regression model with all three predictors for the disruption to routine behavior as a result of the COVID-19 pandemic was also significant overall ($R^2 = 0.167$, $F(3, 273) = 18.19$, $p < 0.01$), indicating that 16.7% of the variance in disruption to routine behaviors as a result of the COVID-19 pandemic can be accounted for by the three predictors. Perceived adequacy of resources had a significant regression weight ($\beta = -0.428$, $p = 0.00$), suggesting that students with higher scores on the PARS were less likely to experience disruption to routine behaviors as a result of the COVID-19 pandemic after controlling for other variables in the model. SOC and perceived social support did not contribute to this regression model (see Table 2).

4.2.2 | Hierarchical regression analyses

To examine the unique contribution of gender (female vs. male) and class year (underclassmen vs. upperclassmen) on students perceived stress and the disruptions to their routine behaviors as a result of the COVID-19 pandemic, these two demographic variables were added into the above regression models, creating two hierarchical multiple regression analyses. For the first analysis, perceived stress was the dependent variable. In Step 1, gender and class year were entered as predictor variables. In Step 2, SOC and perceived adequacy of resources were added as predictor variables. The results of Step 1 indicated that the variance for (R^2) with the first two independent variables was 0.143 (adjusted $R^2 = 0.135$), which was significantly different from zero ($F(2, 222) = 18.46, p < 0.05$). Gender was the only statistically significant independent variable, ($\beta = -0.355, p < 0.05$). In Step 2, the change in variance accounted for (ΔR^2) was equal to 0.442, which was significantly different from zero ($F(4, 220) = 43.51, p < 0.05$). Gender ($\beta = -0.191, p < 0.05$), SOC ($\beta = -0.151, p < 0.05$), and the perceived adequacy of resources ($\beta = -.498, p < 0.05$) were statistically significant predictors. As can be seen from the results, the predictive effect of gender decreases when the other variables are included (see Table 3).

The second hierarchical regression analysis examined disruptions to routine behaviors as a result of the COVID-19 pandemic as the dependent variable. In Step 1, gender and class year were again the predictor variables. In Step 2, SOC and perceived adequacy of resources were added as predictor variables. The results of Step 1 indicated that the variance for (R^2) with the first two independent variables equaled 0.053 (adjusted $R^2 = 0.045$), which was significantly different from zero ($F(2, 222) = 6.25, p < 0.05$). Class year was the only statistically significant independent variable, ($\beta = 0.168, p < 0.05$). In Step 2, SOC and perceived adequacy of resources were entered into the regression equation, increasing the number of independent variables to four. The change in variance accounted for (ΔR^2) was equal to 0.166, which was significantly different from zero ($F(4, 220) = 10.97, p < 0.05$). The perceived adequacy of resources was the only statistically significant independent variable ($\beta = -0.369, p < 0.05$). As can be seen from the results, class year loses its predictive effect when the other variables are included, leaving perceived adequacy of resources as the only significant predictor in Step 2 (see Table 4).

Because perceived adequacy of resources was the strongest predictor for both dependent variables, we explored these relationships more deeply by examining if specific subscales of the PARS accounted for the relationships. Specifically, we conducted two regression analyses again (one for each dependent variable), with each

TABLE 3 Summary of hierarchical multiple regression analyses for variables predicting perceived stress in college students

Variable	β	t	R^2	ΔR^2	F	ΔF	p
Step 1			0.14	0.14	18.46	18.46	0.00
Gender (female or male)	-0.36**	-5.60					0.00
Class year	0.08	1.21					0.23
Step 2			0.44	0.30	58.93	43.51	0.00
Gender (female or male)	-0.19**	-3.53					0.00
Class year	0.02	0.30					0.77
BSCS	-0.15**	-2.71					0.00
PARS	-0.50**	-8.36					0.00

Note: $N = 225$. Class year: underclassmen (freshmen & sophomores) or upperclassmen (juniors & seniors). Abbreviations: β , standardized coefficients beta; ΔF , F change; ΔR^2 , R square change; BSCS, Brief Sense of Community Scale; p , p -value; PARS, Perceived Adequacy of Resources Scale.
* $p < 0.05$; ** $p < 0.01$.

TABLE 4 Summary of hierarchical multiple regression analyses for variables predicting disruption to routine behaviors as a result of the COVID-19 pandemic among college students

Variable	β	t	R^2	ΔR^2	F	ΔF	p
Step 1			0.05	0.05	6.25	6.25	0.00
Gender (female or male)	-0.13*	-1.94					0.05
Class year	0.17*	2.52					0.01
Step 2			0.17	0.11	10.97	14.91	0.00
Gender (female or male)	-0.02	-0.26					0.79
Class year	0.12	1.88					0.61
BSCS	0.02	0.30					0.76
PARS	-0.37**	-5.06					0.00

Note: $N = 225$. Class year: underclassmen (freshmen & sophomores) or upperclassmen (juniors & seniors).

Abbreviations: β , standardized coefficients beta; ΔF , F change; ΔR^2 , R square change; BSCS, Brief Sense of Community Scale; p , p -value; PARS, Perceived Adequacy of Resources Scale.

* $p < 0.05$; ** $p < 0.01$.

of the subscales entered as a predictor variable. The results revealed that the subscales on health/physical energy resources ($M = 20.35$; $SD = 5.05$; $p < 0.01$), time resources ($M = 18.64$; $SD = 5.47$; $p < 0.01$), and Knowledge and skill resources ($M = 18.96$; $SD = 4.56$; $p < 0.01$) were the significant predictors for perceived stress ($M = 31.47$; $SD = 7.46$). The health/physical energy resources consists of items such as "My health allows me to do what I want," the time resources consists of items such as "I have enough time to do the things I want to do." The knowledge and skill resources consist of items such as "My knowledge is adequate for the work that I do."

In the second regression analysis, results revealed that disruptions to daily life due to COVID were predicted by two subscales: health/physical energy resources ($M = 20.34$; $SD = 5.05$; $p < 0.01$) and the financial resources ($M = 16.38$; $SD = 5.79$; $p < 0.01$). Financial resources refer to money, including credit (Rowland et al., 1985); this subscale consists of items such as "I have enough financial resources to meet unexpected expenses."

5 | DISCUSSION

The present study examined the protective role of SOC, perceived access to resources, and perceived social support on perceived stress and COVID-19-related disruption to daily life. The roles of potential moderating variables such as gender and class year were also explored. The data analysis supported the hypothesis that students with a stronger SOC to the university would experience lower levels of perceived stress. However, SOC was not correlated to COVID-19-related disruptions to daily life. The hypothesis was also supported that greater perceived access to resources would negatively correlate with perceived stress levels and COVID-19-related disruptions to daily life. Our third hypothesis stated that increased levels of perceived social support would be negatively related to perceived stress and COVID-19-related disruption to daily life; the data analysis did not support this hypothesis. We found that perceived social support was not significantly related to perceived stress or COVID-19-related disruptions to daily life amongst our participants.

Our final hypothesis stated that demographic variables such as gender, ethnicity, class year, and residential status would also have an influence on college students' perceived stress and COVID-19-related daily life disruptions, even when our predictor variables (the independent variables) were included in the models. Preliminary analysis showed that only gender and class year were significantly related to perceived stress and

COVID-19-related disruptions to the daily life of college students. After a series of hierarchical regression analyses, we found that gender and class year had a significant predictive effect on perceived stress; however, only gender retained its significant predictive effect when the predictor variables were added to the analysis. For COVID-19-related disruptions to daily life, only class year had a significant predictive effect; however, it lost its significant predictive effect when the predictor variables were added to the analysis.

Overall, the findings from the study highlight the importance of SOC and access to resources in mitigating stress and COVID-19-related disruptions to daily life among college students.

5.1 | Sense of community

Previous research has rarely examined how SOC safeguards against stress among college students; however, its significance as a protective factor has been emphasized. For example, studies have found that SOC effectively builds resilience and promotes positive well-being (Greenfield & Marks, 2010; Thomas & Bowie, 2016; Wombacher et al., 2010). Previous literature has also shown that SOC is significant in reducing stress and enhancing coping abilities (Klein & D'Aunno, 1986). In our study, students reported feeling an average to high SOC to the university. Findings showed that the higher the SOC college students felt, the less they reported feeling stressed. Although the relationship was weak, as SOC increased, disruptions to the daily life of college students also appeared to be reduced. This suggests that SOC could be an important protective factor that may have the potential to boost college students' ability to cope with the COVID-19 pandemic.

5.2 | Access to resources

There has been limited research on the adequacy of resources as a protective factor against stress and other negative psychological outcomes. Previous research has mainly focused on the importance of access to resources in social institutions, food security, and the global society, to name a few. Research has also centered on how perceptions of adequacy and access to resources influence judgments, decisions, actions, and interactions (Berry, 1989; Elenbaas, 2019; Henderson & Loreau, 2020; Payne-Sturges et al., 2017). Although these aspects are relevant, the significance of access to resources as a protective factor against stress and overall psychological well-being has been overlooked. Access to resources is especially relevant during the current global pandemic as many people struggle to access needed resources (McMahon et al., 2020; Solomon et al., 2020; WHO, 2020). The findings from our study showed that most of the participants perceived that the resources they had were adequate. Students who reported high perceived adequacy of resources also reported lower stress levels and fewer disruptions to their daily life. Furthermore, findings suggest that specific resources were more influential than others: health/physical energy resources, time resources, knowledge and skill resources, and financial resources.

Rowland et al. (1985) referred to the first three resources as human resources. Human resources were classified as qualities and skills found within the individual. Furthermore, these resources had to be present for other resources to be efficiently utilized. In particular, health/physical energy resources were considered significant by college students across both dependent variables. This could be due to the importance of physical health in carrying out daily activities, especially during a pandemic and in dealing with stressful situations. Not only does the COVID-19 virus affect physical health, thereby limiting the activities that one can perform, but research has also shown that maintaining positive physical health is crucial in stressful situations, as it could serve as a buffer against stress and its negative adverse effects (Flueckiger et al., 2016; Perchtold-Stefan et al., 2020). Previous literature shows that having access to needed resources mitigates stress and promotes overall psychological well-being (Marshall et al., 2020; Organista & Ngo, 2019). Consistent with this previous research, our findings suggest that access to resources is an important protective factor that should be emphasized in every community. Access to

resources helps vulnerable populations like college students combat the adverse effects of crisis events such as the COVID-19 pandemic.

5.3 | Gender

Female students reported having higher levels of stress and less perceived adequacy of resources than male students. Previous research has found that among undergraduate students, female students generally tended to report experiencing more stress in their daily lives than their male counterparts. In addition, female students also reported experiencing more stress in relation to the pandemic (Prowse et al., 2021). In a study by Soffer (2010), the role of stress was examined among young adults who were primarily undergraduate students. The results showed that female participants reported experiencing higher levels of stress (job/studies) compared to male participants.

Additionally, a Hungarian study on attitudes towards COVID-19 and stress levels revealed that women were more worried about the virus and reported higher levels of stress as a result of the pandemic (Szabo et al., 2020). Furthermore, studies have shown that due to gender differences, women have historically and continue to have less access or control over resources (Mayoux, 1995; Paul & Rani, 2017; Ravindran, 2002; Solano & Rooks, 2018; Tesch-Römer et al., 2007). Therefore, it could be that in our study, female students' lower perceived adequacy of resources contributed to their higher levels of stress. These results emphasize the need to increase access to resources for female students, as it could be a protective factor relevant to this marginalized population. College students are a vulnerable population; however, female college students are even more vulnerable and susceptible to inequities and the negative social impact of events such as the COVID-19 pandemic. Therefore, protective factors such as having equal access to resources could help reduce the impact of the COVID-19 pandemic and boost their coping ability, thereby improving their well-being.

5.4 | Class year

Our findings indicated that upperclassmen (juniors and seniors) reported experiencing more stress and COVID-19-related daily life disruptions than underclassmen (first-year students and sophomores). The reason for these differences is unclear. It could be that upperclassmen may be struggling with an exacerbation of typical uncertainties in response to graduation, future employment, to name a few. It may also be that underclassmen, particularly first-year students, do not have a college routine yet as they are just beginning, so there is less to disrupt. Most research exploring stress in college focuses on the effect of stress on academic performance and overall well-being of college students (Baghurst & Kelley, 2013; Brougham et al., 2009; Chambel & Curral, 2005; Struthers et al., 2000; Zajacova et al., 2005). Therefore, more research will need to be conducted to see if these differences continue and to understand more about what might be driving them.

5.5 | Limitations

One of the study's main limitations was that the sample only consisted of students from a private Northeastern University in the United States. This could have confounded the data and limited its generalizability to all college students. A second limitation is the uneven distribution of gender, ethnicity, and class year of the participants in the study. A majority of the students in the sample identified as female, underclassmen (primarily first-year students), and White/Caucasian. Similarly, this uneven distribution limits generalizability to a more diverse population of college students. This uneven distribution could be attributed to the convenience sampling method that was utilized to collect data. A final limitation is that we cannot draw conclusions from the results due to the study's

methodology. It is not clear if the COVID-19 pandemic is directly causing stress or disruptions to the daily life of these students (although the disruption to daily life measure explicitly focused on pandemic-related disruptions). Therefore, caution should be taken when interpreting the results until more studies can be conducted.

5.6 | Implications

Keeping the study's limitations in mind, the results suggest that SOC and perceived access to resources could play a protective role for college students in dealing with stress and COVID-19-related disruptions to daily life due to the pandemic. Therefore, these factors should be emphasized more often in college communities to enhance psychological well-being and improve human functioning. In the case of SOC, college communities should make the environment more inclusive and welcoming to the students to foster or increase their sense of belongingness. To achieve this, universities could focus on organizing events and functions that would create shared experiences, having school rituals that connect people emotionally and coordinating projects that would involve diverse students working together, and building strong bonds that will last even after they leave the community. It is also crucial that the college community emphasizes how much they value its members. Students' opinions and complaints should always be taken seriously, and committees can be formed that would involve students in the decision-making processes in the school, especially the decisions that directly affect them. These committees should be diverse and inclusive, and truly representative of the college community. This would strengthen the SOC among the students and therefore serve as a protective factor against negative psychological factors during crises such as the COVID-19 pandemic.

Having access to needed resources is a fundamental right for every human being, but regrettably, inequalities exist, and the allocation of resources is not always fair. Unfortunately, the COVID-19 pandemic has not only limited access to resources but has also exacerbated the inequities that already exist, thereby exposing individuals and communities to more negative consequences. Our findings suggest that increased access to resources could be a critical factor in alleviating the adverse effects of the pandemic for college students, particularly female students who report more stress and lower perceived adequacy of resources. In addition, college communities can support their members by providing some of the resources. At the moment, many individuals lack financial resources, and school communities can help address this need by providing food and grocery gift cards, need-based assistance that could cover a month's rent, food pantries, data services, and other aids. College communities could also connect students to the resources in the community by forming partnerships with community agencies and organizations that would provide the needed resources to students in alliance with the school. This could include free COVID-19 testing, discounted health services, access to telehealth services, food pantries, and other forms of assistance. In addition, regular emails could be sent out to students informing them of available resources that they can easily access within the community. The mere act of providing them with helpful information is a resource that would be beneficial in getting through the pandemic. The benefits of having one's needed resources cannot be over-emphasized, especially during pandemics and other crises.

5.7 | Future directions

Although many of the hypotheses were supported, there is still a need for future research. SOC and access to resources were negatively related to stress and COVID-19-related disruptions to daily life, suggesting that they could serve as protective factors for college students during this pandemic. Future studies should examine more diverse samples to have greater representation and generalizability. It would also be interesting to explore if demographic characteristics such as ethnicity, gender, and age would serve as moderators with larger and more diverse samples.

Additionally, as previously mentioned, limited research has been done on access to resources as a protective factor and its importance to psychological well-being. Therefore, future research should consider focusing more on this aspect so as to provide more insight into its protective role and suggest additional ways we can use it to improve psychological well-being and functioning. There is also a need for more measures to be developed that assess the availability and adequacy of different kinds of resources ranging from human resources to social resources to psychological resources.

Furthermore, while the COVID-19 pandemic is still novel and we are still learning about it, we believe there is a need for more standardized COVID-19 measures that would assist future researchers in adequately exploring the pandemic and its effects on different populations. Finally, although the pandemic might end, the psychological impact of it will be with us for many years. Therefore, we can learn how best to support our college students and others through the aftermath and be more prepared to respond to any similar traumatic experiences in the future.

5.8 | Conclusion

This study found that SOC and perceived access to resources could be critical protective factors to help college students cope with stress and COVID-19-related disruptions to daily life. In particular, increased access to resources may be particularly helpful to female students who report more stress and disruptions. These protective factors should be emphasized in college communities and society as a whole, as they could protect against the negative psychological and social impacts of the ongoing COVID-19 pandemic. There is still an evident need to discover and enhance more protective factors to safeguard vulnerable populations against the negative consequences of pandemics and improve psychological well-being. This study takes a step in the right direction as it highlights the potential benefits of protective factors—SOC and access to resources—in building resilience and coping abilities amongst college students during the COVID-19 era. This study can serve as a basis for other studies and as a resource for informing policies that impact college students.

DATA AVAILABILITY STATEMENT

The data for this manuscript can be provided upon request.

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