

The Relationship Between Perceived Stress and Disordered Eating in Undergraduate Students During the COVID-19 Pandemic

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Abstract

The COVID-19 pandemic has affected and imposed challenges on nearly everyone, including college students. Despite their already stressful situations, previous research has demonstrated increased stress levels among college students during the COVID-19 pandemic. Additionally, research has also shown an increase in disordered eating for college students during the pandemic. However, few studies have investigated the relationship between both perceived stress and disordered eating during the COVID-19 pandemic. Therefore, the present study used a correlational design to investigate a potential association between perceived stress and disordered eating among undergraduate college students during the COVID-19 pandemic. By administering the EAT-26, the CSSEC, the PSS-10, and the PSS-10-C to 58 liberal arts students, the findings supported my hypothesis, indicating a significant relationship between disordered eating and perceived stress levels among college students during the COVID-19 pandemic. The results provide insight into some of the challenges that college students face. They can also serve as a platform for school administrators and faculty to recognize how stress impacts eating habits, furthering the importance that campus counseling centers should be able to handle student needs specific to eating issues, such as providing nutritional counseling. Additionally, this study offers suggestions for furthering our knowledge of COVID-19's impacts on college students.

Keywords

college students, COVID-19, disordered eating, perceived stress, correlational

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Disordered Eating

Surveys estimate that 75% of American women engage in disordered eating behaviors (Science Daily, 2008). These abnormal eating behaviors include food restriction, binge eating, eating to fulfill emotional needs, and compensatory behaviors, such as spitting, purging, and exercise abuse (Ozier & Henry, 2011). Numerous health-related consequences, such as poor self-rated health, psychological distress, and higher BMI's, are associated with disordered eating (Kärkkäinen et al., 2018). Additionally, previous research conducted by Gan et al. (2011) suggested a relationship between disordered eating, stress, depression, and anxiety, demonstrating negative mental health associations as well.

Disordered eating is also a significant issue that many college students face. A longitudinal study conducted over thirteen years found an 18% increase in disordered eating and a 12% increase in eating disorder diagnoses among college students (White et al., 2011). Additionally, Striegel-Moore et al. (1989) determined that 25% of college students began dieting, and 15% began binge eating in their first year of college. Furthermore, researchers have discussed various factors related to this increase in disordered eating behaviors, including high perceived stress and negative perceptions about their weight. This increase in the prevalence of disordered eating behaviors is concerning as it could contribute to serious issues, such as eating disorders (Blodgett Salafia et al., 2012).

Although there are various connections, disordered eating behaviors are distinct and different from eating disorders. Disordered eating encompasses a wide variety of abnormal eating behaviors (Ozier & Henry, 2011), whereas eating disorders are severe and clinically diagnosable mental illnesses by the DSM-5 (American Psychiatric Association, 2013). Concerning college students, eating disorders are, unfortunately, significant

issues. Using a random sample of college students, research conducted by Eisenberg et al. (2011) found that approximately 9% to 13% of college women meet the diagnostic criteria for an eating disorder, while 3% to 4% of men also meet the criteria. This is worrisome as Eisenberg et al. (2011) also indicated a low treatment-seeking rate among college students, signifying that college students typically only receive treatment when they are in crisis.

Today, college students face another challenge- studying during the Coronavirus (COVID-19) pandemic. Although COVID-19 is ongoing, one pilot study suggested that the pandemic has increased disordered eating behaviors by 38% (Fernández-Aranda et al., 2020). Researchers have proposed three potential pathways in which the COVID-19 pandemic may increase disordered eating, including disruptions to daily activities, media use, and emotional distress (Rodgers et al., 2020).

Specific to college students, studies have also shown an increase in disordered eating during the COVID-19 pandemic (Keel et al., 2020; Flaudias et al., 2020). One study examined perceived weight versus actual weight gain as a result of the COVID-19 quarantine and found that perceived weight gain was higher than actual weight gain for over a quarter of college students (Keel et al., 2020). Therefore, the pandemic appears to have affected students' perceptions of their weight, which may eventually contribute to disordered eating behavior. Additionally, another study took notice of the increased use of social media during lockdown periods and determined that increased exposure to media containing COVID-19 information was significantly associated with the desire to binge eat (Flaudias et al., 2020). Thus, COVID-19 has various implications for disordered eating.

Stress

Stress is a universal mental state that everyone endures, and while some amount of stress is necessary and promotes improved brain performance (Kirby et al., 2013), chronic stress has numerous negative effects on one's health and body, including reproductive issues, cardiovascular problems, and a weakened immune system, among others (American Psychological Association, 2018). However, stress also has mental health implications, in which

research has demonstrated correlations between stress, depression, and anxiety (Gan et al., 2011; Husky et al., 2020).

For college students, stress is unavoidable. College students' stressors typically fall into five different dimensions: personal inadequacy, fear of failure, interpersonal difficulties, teacher-pupil relationships, and inadequate study facilities (Reddy et al., 2018). Among current and recent college students, researchers indicated that the most significant source of stress came from their studies (Ramachandiran & Dhanapal, 2018). Furthermore, academic stress is often correlated with maladaptive coping behaviors such as alcohol use (Metzger et al., 2017) and binge eating (Martyn-Nemeth et al., 2009). This is concerning as it demonstrates the need for resources to promote healthy coping strategies for college students.

Each year, the American Psychological Association (APA) conducts the Stress in America Survey. Given the recent context, it is no surprise that the APA's 2021 edition focused solely on the COVID-19 pandemic. Findings from the APA's survey noted that 75% of adults reported a high stress level (a score between eight and 10 on a 10-item Likert scale where 10 represented "a great deal of stress") when asked about the COVID-19 pandemic (2021). In addition, Shah et al. (2021) suggested that the longer a person remained in quarantine, the more stress the person experienced. Considering that COVID-19 has claimed over 500,000 lives in the United States (Centers for Disease Control and Prevention, 2021), it is no surprise that the pandemic is a substantial stressor for many. These increased stress levels are not unique to Americans, as regardless of location, stress and anxiety related to COVID-19 across the globe are profoundly prevalent (Shah et al., 2021).

Unfortunately, college students, who already have high levels of stress, are accumulating even more during this pandemic (Charles et al., 2021). Toward the beginning of COVID-19, some students relocated to quarantine with family members, friends, or significant others, and researchers found that college students who relocated to quarantine with their parents had lower levels of stress compared to those who did not relocate (Husky et al., 2020). Furthermore, as classes moved online to prevent COVID-19 transmission, a study conducted by Moawad (2020) determined that online learning is associated with significant stress levels, with the strongest

stressor being the uncertainty of completing final exams and projects entirely online. Similarly, one study suggested that college students' perceived stress levels are approximately 3% higher now than they were prior to the pandemic's onset (Charles et al., 2021).

Disordered Eating and Stress

Ultimately, multiple studies have demonstrated a unique relationship between stress and disordered eating (Blodgett Salafia & Lerner, 2012; Gan et al., 2011; King et al., 2009). For example, previous research found that females have higher reported rates of stress and disordered eating behaviors compared to males, even among middle school children (Blodgett Salafia & Lerner, 2012). This association between disordered eating and stress, specifically job-related stress, was also found in nurses (King et al., 2009).

College students endure various sources of stress, and research has indicated that students with high levels of stress presented more unhealthy dietary behaviors, including undereating and overeating, compared to students with lower stress levels (Oliver & Wardle, 1999; Choi, 2020). Additionally, Gan et al. (2011) found a significant moderate correlation between disordered eating and stress regardless of sex. Breaking it down by sources of stress, one study suggested that when students had higher academic stress, they also reported significantly higher levels of disordered eating (Costarelli & Patsai, 2012). Therefore, even prior to the COVID-19 pandemic, various associations between stress and disordered eating were found in college students. Nevertheless, one study did examine college students amidst COVID-19 and determined that higher stress levels during quarantine periods were related to an increased risk of disordered eating behaviors (Flaudias et al., 2020).

Current Research

As mentioned above, previous studies have found a relationship between increased stress levels and COVID-19 among undergraduate students (Park et al., 2020; Shah et al., 2021). Additionally, recent research has also demonstrated increased disordered eating behaviors during COVID-19 (Keel et al., 2020; Flaudias et al., 2020). As the pandemic continues, it is imperative to understand how COVID-19 is affecting different aspects of students' lives. In a non-pandemic context, previous research has suggested a link between stress and disordered

eating in college students (Oliver & Wardle, 1999; Costarelli & Patsai, 2012). By contrast, there are few studies that have focused on the relationship between stress and disordered eating during the pandemic, and only two have examined college students (Flaudias et al., 2020; Ramalho et al., 2021). Still, Flaudias et al.'s (2020) research focused solely on quarantine periods, while Ramalho et al. (2021) investigated psychological distress, which, in addition to stress, also included depressive symptomatology and anxiety. Consequently, the purpose of this study was to further investigate the relationship between perceived stress and disordered eating among college students during the current COVID-19 pandemic.

This study contributed to the COVID-19 pandemic-related literature as it examined a link that has yet to be thoroughly studied. Additionally, it provided multiple real-world applications. For example, the results could be used to create resources for college students, including those studying remotely, to help manage their stress. Moreover, this study could convey the physical and mental health struggles college students are currently facing in the COVID-19 pandemic to professors and college administrators. If administrators, faculty, and staff are aware of the mental health issues that some students endure, then campus counseling centers might be better equipped with the resources needed to cater to every student.

Overall, the purpose of this study was to investigate disordered eating and stress among college students amidst the COVID-19 pandemic. College students in introductory psychology courses were asked to provide demographics and respond to various questionnaires that assessed disordered eating, perceived stress, and perceived stress in the COVID-19 pandemic. Given that previous research has found associations between stress and disordered eating in a non-pandemic environment (Blodgett Salafia & Lerner, 2012; Gan et al., 2011; King et al., 2009), it was hypothesized that in the context of the COVID-19 pandemic, a strong significant relationship between disordered eating and stress levels of college students would occur.

Method

Participants

Participants included 58 students at a small, private liberal arts college who earned 0.5 course credit for participating. Participants were recruited through the college's participant pool management system and were enrolled in introductory psychology courses. Of the 58 students, 38% identified as male, and 62% identified as female. The majority of participants identified as White or Caucasian (60%); however, 16% identified as Asian or Pacific Islander, 10% as Black or African American, 3% as Multiracial or Biracial, 9% as Hispanic or Latino, and 2% as Indian. Additionally, most participants were from the class of 2023 (45%), whereas 41% were from the class of 2024, 9% from the class of 2022, and 5% from the class of 2021.

Design & Procedure

This study used a correlational design. All participants completed the study online. Once participants consented to participate, they completed questionnaires assessing disordered eating behaviors (see Appendix A), college students' stressful events (see Appendix B), perceived stress (see Appendix C), and perceived stress associated with the COVID-19 pandemic (see Appendix D). Items assessing college students' stressful events and disordered eating were randomized. Participants were then asked demographic questions, which included gender, class year, race/ethnicity, whether they were currently on-campus/remote, if they were physically active, and whether they were on a college sports team (see Appendix E). Lastly, participants read the debriefing statement. Once completed, they were given 0.5 credit for their participation.

Materials & Measures

Disordered Eating

The Eating Attitudes Test (EAT-26) was used to measure disordered eating (Garner et al., 1982). The 26-item EAT-26 measured disordered eating and consisted of three subscales- the dieting subscale, bulimia and food preoccupation subscale, and oral control subscale. All three subscales were included in this study. The dieting subscale asked questions such as "I am aware of the calorie content of foods that I eat," while the bulimia and food preoccupation subscale asked questions similar to "I have gone on eating binges where I feel that I may not be able to stop." Finally, questions such as "I avoid eating when I am hungry" were asked in the oral control

subscale. Participants responded to each question by selecting one of the following: always, usually, often, sometimes, rarely, and never. A response of “always” received three points, “usually” received two points, “often” received one point, and “sometimes,” “rarely,” and “never” received zero points. Item 26, “I enjoy trying new food,” was reversed scored. Total scores were obtained by adding all the points together. Higher scores indicated higher levels of disordered eating. Individuals whose scores were equal to or greater than 20 suggested testing for a potential eating disorder diagnosis, as they demonstrated an increased risk of having a serious eating disorder. The EAT-26’s five behavioral questions were also incorporated along with the 26 items. These questions assessed behaviors within the past six months and asked if the participant had “Gone on eating binges where you feel that you may not be able to stop?”, “Ever made yourself sick (vomited) to control your weight or shape?”, “Ever used laxatives, diet pills, or diuretics (water pills) to control your weight or shape?”, “Exercised more than 60 minutes to lose or to control your weight?”, and “Lost 20 pounds or more in the past 6 months?” Responses included “never,” “once a month or less,” “2-3 times a month,” “once a week,” “2-6 times a week,” and “once a day or more.” Finally, participants either marked “yes” or “no” for the last question (“Lost 20 pounds or more in the past 6 months?”). Responses to the five behavioral questions were not given scores; however, anything above “2-3 times a month” for “Gone on eating binges where you feel that you may not be able to stop?”, “once a month or less” for both “Ever made yourself sick (vomited) to control your weight or shape?” and “Ever used laxatives, diet pills, or diuretics (water pills) to control your weight or shape?”, and “once a day or more” for “exercised more than 60 minutes a day to lose or control your weight?” indicated disordered eating that may warrant a professional evaluation. A response of “yes” for the last question (“Lost 20 pounds or more in the past 6 months”) also indicated that an evaluation might be needed. The five behavioral questions were included to further examine participants’ disordered eating. The EAT-26 has demonstrated construct validity and internal consistency with a Cronbach’s alpha of above .90 (Rivas et al., 2010).

The EAT-26 has been used in numerous studies assessing disordered eating. For example, Jackson et al. (2006) used the EAT-26 in a study of trans-cultural comparison of disordered eating in Korean women. The study demonstrated the importance of cultural factors in the development of eating disorders, as Korean-American

women scored lower on the EAT-26 than native Koreans and Korean immigrants. Additionally, research has found an association between exercise and negative affect among college women with high EAT-26 scores (Thome & Espelage, 2004).

Stressful Events in College Students

The College Student's Stressful Event Checklist (CSSEC) is designed to measure the number of stressful events experienced by college students within the past year (Educational Outreach and Student Services of Arizona State University, n.d.). It was adapted from Holmes and Rahe's Social Readjustment Rating Scale (SRRS; 1967). Participants were asked to indicate which of the 32 potential stressor events they had experienced or expected to experience soon. Examples of stressful events included "Problems with a girlfriend or boyfriend," "Increased workload at school," and "Difficulty with roommate(s)." Values were assigned to each event, with the largest value being 100 ("Death of a close family member") and the smallest event value of 20 ("Minor traffic violations"). A total score was obtained by adding all values together. Severe stress corresponded with scores above 300, 150 to 300 indicated moderate stress, and scores under 150 signified mild stress. Thus, a higher score suggested higher stressful events experienced. Although information concerning reliability and validity was not available for the CSSEC, the SRRS has demonstrated reliability with a Cronbach's alpha of .72 (Lei & Skinner, 1980). The SRRS has also exhibited predictive validity (McGrath & Burkhart, 1983).

The CSSEC has been used in other studies to measure stressful events in college students. In one study, a high CSSEC score was correlated with decreased hours of sleep (Massabni, 2019). Therefore, higher stress levels were associated with lower amounts of sleep. Additionally, Krynska et al. (2015) used the CSSEC and determined that stress was a significant predictor of suicide.

Perceived Stress

Perceived stress was measured using the 10-item Perceived Stress Scale (PSS-10; Cohen & Williamson, 1988). Example questions included "In the last month, how often have you found that you could not cope with all the things that you had to do?" and "In the last month, have you felt that you were unable to control the

important things in your life?” Responses were on a four-point Likert scale with “never” equaling zero points and “very often” equaling four points. Items four, five, seven, and eight were reverse scored. A total score was obtained by summing up the scores. Therefore, a higher score suggested a higher level of perceived stress. Balik et al. (2019) found that the PSS-10 has good internal consistency reliability with a Cronbach’s alpha of .82, as well as factorial and convergent validity.

Numerous studies have used the PSS-10 to assess perceived stress. McAlonan et al. (2007) found that during the 2003 SARS outbreak, health care workers who had a higher risk of contracting SARS had a higher level of stress, as measured by the PSS-10. Additionally, another study used the PSS-10 to measure stress and demonstrated that during the current COVID-19 pandemic, lockdown periods were more stressful for younger adults, women, unemployed individuals, and those with low incomes (Pieh et al., 2020).

Perceived Stress During COVID-19

Pedrozo-Pupo et al. (2020) modified the PSS-10 to measure perceived stress associated with the COVID-19 pandemic. The PSS-10-C included 10 items, for example, “I have been nervous or stressed by the epidemic” and “I have been upset that things related to the epidemic are out of my control.” Responses were on a five-point scale with “never” receiving zero points and “very often” receiving four points, with items four, five, seven, and eight being scored reversely. A total score was obtained by summing up the scores, with higher scores indicating higher levels of perceived stress related to COVID-19. A score of 25 or above was labeled as high in perceived stress associated with COVID-19. As determined by Pedrozo-Pupo et al., the PSS-10-C demonstrated internal consistency with a Cronbach’s alpha of .86. Although information on the validity of the PSS-10-C was not available, the PSS-10 showed factorial and convergent validity (Balik et al., 2019).

As a recently adapted measure, the PSS-10-C has yet to be widely used in psychological research. However, Pedrozo-Pupo et al. (2020) found that high levels on the PSS-10-C were associated with perceived inconsistent strategies by the government to mitigate the spread of COVID-19 and scientific recommendations.

Results

Participant Flow

Data for all 58 participants were included in the analysis.

Descriptive Statistics

Descriptive statistics for the key variables can be found in Table 1.

Table 1

Descriptive Statistics for Key Variables

Measure	<i>M</i>	<i>SD</i>	Actual Range	Possible Range	Cronbach's <i>a</i>
Perspective Stress Scale	33.00	3.58	4 - 37	0 - 40	0.89
Perspective Stress Scale- COVID-19 Materials	21.62	3.16	4 - 33	0 - 40	0.83
College Student's Stressful Event Checklist	273.79	148.58	0 - 726	0 - 920	-
Eating Attitude Test-26	11.15	20.91	0 - 56	0 - 78	0.91

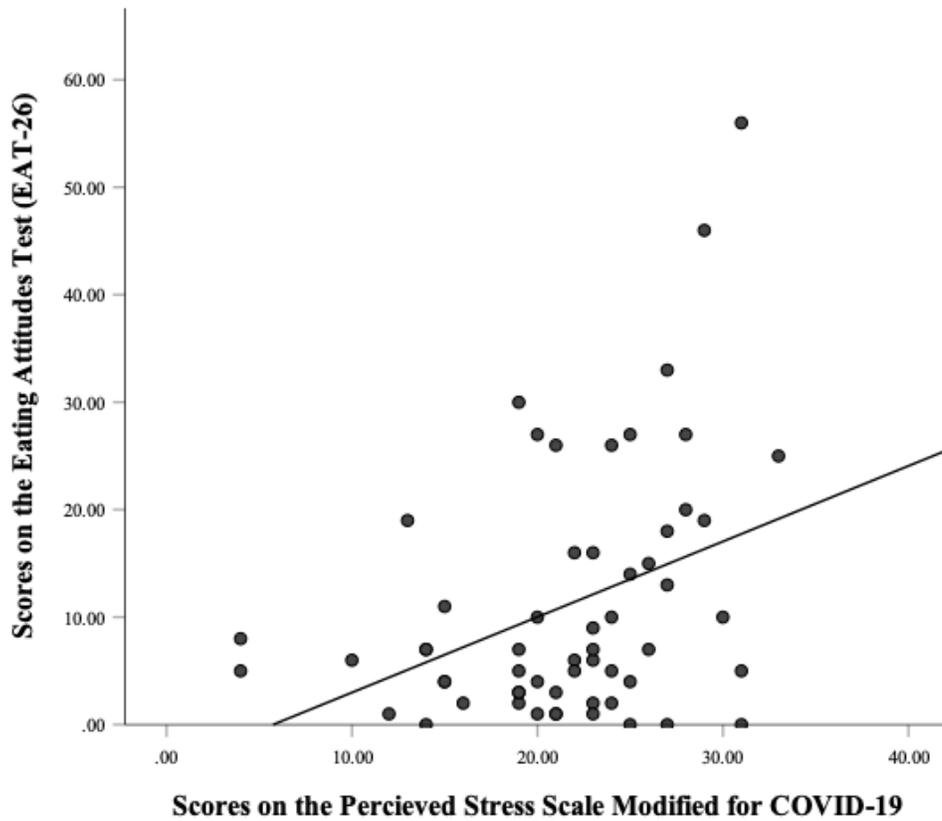
Inferential Statistics

A Spearman's correlation analysis was conducted to test the hypothesis that there is a strong, positive relationship between perceived stress and disordered eating in undergraduate students during the COVID-19 pandemic. A Spearman's correlation was used instead of a Pearson's correlation due to assumption violations (normality and outliers). Preliminary analyses indicated a linear relationship between scores on the EAT-26 and the PSS-10-C (see Figure 1). The bivariate correlations for the key variables can be found in Table 2. Additionally, consistent with the hypothesis, there was a statistically significant positive correlation between scores on the EAT-26 and the PSS-10-C, $r_s(N = 58) = .31, p = .017$. This positive correlation indicates a relationship between

perceived stress and disordered eating in undergraduate students in the context of the COVID-19 pandemic, implying that as perceived stress levels increase, disordered eating behaviors also increase, or vice versa.

Figure 1

Scatter plot of scores on the Eating Attitudes Test (EAT-26) and the Perceived Stress Scale Modified for COVID-19 (PSS-10-C)



Note. The scatter plot illustrates the linear relationship between scores on the Eating Attitudes Test (EAT-26) and scores on the Perceived Stress Scale Modified for COVID-19 (PSS-10-C).

Table 2*Bivariate Correlations for Key Variables*

Measure	1	2	3	4
Perspective Stress Scale	-			
Perspective Stress Scale- COVID-19 Materials	.546**	-		
College Student's Stressful Event Checklist	.330	.288*	-	
Eating Attitude Test-26	.223	.313*	.196	-

Note. * Correlation is significant at the 0.05 level (2-tailed), ** Correlation is significant at the 0.01 level (2-tailed)

Effect Size

Although a positive relationship was found between the EAT-26 and PSS-10-C, the correlation coefficient ($r_s(N = 58) = .31$) indicates that it is a weak relationship.

Discussion

The present study used a correlational design to investigate a potential relationship between perceived stress and disordered eating among college students during the COVID-19 pandemic. Through administering the EAT-26 (Garner et al., 1982), the CSSEC (Educational Outreach and Student Services of Arizona State University, n.d.), the PSS-10 (Cohen & Williamson, 1988), and the PSS-10-C (Pedrozo-Pupo et al., 2020), the findings indicated a significant relationship between perceived stress and disordered eating among college students amidst the COVID-19 pandemic. While the findings support the hypothesis of a link between perceived stress and disordered eating among college students during the pandemic, it was predicted that a stronger relationship would occur due to the previous research that found this link in a non-pandemic context (Blodgett Salafia & Lerner, 2012; Gan et al., 2011; King et al., 2009) and research suggesting an increase in stress (Park et

al., 2020; Shah et al., 2021) and disordered eating behaviors (Keel et al., 2020; Flaudias et al., 2020) during the pandemic. Ultimately, this study demonstrated an association between reported perceived stress and disordered eating levels among college students during the COVID-19 pandemic.

This study's findings are consistent with previous research that indicated a relationship between stress and disordered eating during COVID-19 among adults (Ramalho et al., 2021). Additionally, the present study's results are compatible with previous research that found links between stress and disordered eating in college students in a non-pandemic context (Oliver & Wardle, 1999; Costarelli & Patsai, 2012). Finally, this study is also consistent with Flaudias et al.'s (2020) research that demonstrated a relationship between stress and disordered eating among college students in COVID-19 quarantine periods. However, Ball et al.'s (1999) findings that perceived stress was not significantly correlated with disordered eating behaviors are inconsistent with this study's findings.

Implications

Although previous studies have demonstrated connections between both increased stress levels in college students during the COVID-19 pandemic (Park et al., 2020; Shah et al., 2021) and increased disordered eating (Keel et al., 2020; Flaudias et al., 2020), this research is among the first to combine the two constructs, disordered eating and perceived stress, among college students during the pandemic. Additionally, this study broadened the COVID-19 pandemic literature as it examined a link that had yet to be thoroughly studied.

The present study also has several practical implications. For example, since it demonstrated a relationship between disordered eating and perceived stress during the COVID-19 pandemic, it could be used to create resources for college students, including those studying remotely who may feel disconnected from campus. Also, this study may make college administrators and professors aware of how mental health struggles can manifest. We often acknowledge how stress impacts depression, anxiety, or academic performance; however, administrators and faculty may not recognize how stress influences eating habits, as this study suggested. Ideally, if faculty and staff recognized these issues, then services, such as campus counseling centers, may be better equipped to handle student needs specific to eating issues, such as providing nutritional counseling. The necessity

for services and support is crucial as disordered eating can lead to eating disorders, which are unfortunately common on college campuses. In fact, one study found that the ratio of female-to-male positive screenings of eating disorders was 3-to-1, with approximately 3.6% of males on college campuses struggling with an eating disorder (Eisenberg et al., 2011). Finally, since previous studies have demonstrated that young people with an eating disorder, including college-aged students, have a higher risk of severe medical issues and death compared to their peers (Fichter & Quadflieg, 2016), this study can hopefully reinforce the notion that campus counseling services need to be able to cater to a wide variety of student needs.

Limitations & Future Directions

Although this study has many real-world implications, there are some limitations that should be taken into consideration for future research. This study used a correlational design; thus, causation cannot be determined. Therefore, it is possible that an unknown third variable affected the results, emphasizing the importance of future research using an experimental approach. Additionally, the participants, students in introductory psychology courses, were not randomly selected, inhibiting the study's generalizability. Consequently, this is a limitation as this study was not reflective of all college students or even small private liberal arts colleges. The study was also conducted solely online, which can be a limitation as participants may have answered randomly and dishonestly. Previous research by Al-Salom & Miller (2019) found that half of college students failed at least one validity check, whereas 11% failed three or more validity checks when participating in online research. Furthermore, Al-Salom and Miller (2019) also conducted the study in-person and found less validity check fails, with zero participants failing three or more validity checks. As a result, subsequent research should take an in-person experimental approach and use random selection to determine cause and effect and improve generalizability.

Future research should also investigate the differences in the relationship between disordered eating and perceived stress during the COVID-19 pandemic for college students who live residentially on campus and those studying at home, as previous research by Husky et al. (2020) found that college students who relocated to quarantine with their parents had lower levels of stress than those who lived on campus. Therefore, it is plausible

that location may affect one's perceived stress or access to well-balanced meals. Future studies should also record family income as a part of the demographic section, as a prior study suggested that those who experienced income loss or financial strain due to the COVID-19 pandemic suffered from more mental health symptoms, including increased stress (Hertz-Palmor et al., 2020). By incorporating this question, researchers may be able to more effectively single out stressors and determine if a particular one has a stronger relationship with disordered eating than others. Additionally, future research should ask if the participant is an international college student. One study found that international students who stayed in their institution country reported increased mental health problems, including anxiety and stress, during the COVID-19 pandemic (Lai et al., 2020). By taking this into consideration for future studies, researchers may be more effective in identifying the types of resources college students need and how to implement them. Finally, future research may also want to assess reported levels of disordered eating and perceived stress among populations other than college students. For example, research by Blodgett Salafia & Lerner (2012) has demonstrated that even among middle school-aged children, there is already a relationship between levels of perceived stress and disordered eating. Therefore, research should examine this link in the context of the COVID-19 pandemic as it may allow educators and professionals to recognize how younger students are also negatively affected by the pandemic and how to best provide resources for students.

Conclusion

In conclusion, this study used a correlational design and demonstrated a relationship between disordered eating and perceived stress among college students amidst the COVID-19 pandemic. The findings have numerous implications and provide insight into the high prevalence of college students who engage in disordered eating behaviors and their relationship to perceived stress.

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Appendix B

College Student's Stressful Event Checklist

Please select the events that have occurred in your life recently or that you expect to occur soon. Select all that apply

- Death of a close family member
- Death of a close friend
- Divorce between parents
- Serious legal problems
- Major personal injury or illness
- Responsibilities for others, such as children/spouse
- Threat to a major source of income
- Difficulty with roommate(s)
- Change in health of a family member
- Pregnancy
- Sexual problems
- Serious disagreements with parents
- Change in lifestyle for financial reasons
- Difficulty in identifying a major
- Serious argument with a close family member
- Problems with a girlfriend or boyfriend
- Having to repeat a course
- Increased workload at school
- Outstanding personal achievement
- First semester in college

- Change in living conditions
- Serious disagreements with an instructor
- Lower grades than expected
- Change in sleeping habits
- Change in social habits
- Change in eating habits
- Chronic car problems
- Change in number of family get togethers
- Too many missed classes
- Change in plans for a major
- Dropped more than one class
- Minor traffic violations

Appendix C

Perceived Stress Scale

The questions in this scale ask about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them, and you should treat each one as a separate question. The best approach is to answer fairly quickly. That is, don't try to count up the number of times you felt a particular way; rather indicate the alternative that seems like a reasonable estimate. Please select one response per question.

Check a response for each of the following questions:	Never	Almost Never	Sometimes	Fairly Often	Very Often
In the last month, how often have you been upset because of something that happened unexpectedly?	<input type="checkbox"/>				
In the last month, how often have you felt that you were unable to control the important things in your life?	<input type="checkbox"/>				
In the last month, how often have you felt nervous and stressed?	<input type="checkbox"/>				
In the last month, how often have you felt confident about your ability to handle your personal problems?	<input type="checkbox"/>				
In the last month, how often have you felt that things were going your way?	<input type="checkbox"/>				
In the last month, how often have you found that you could not cope with all the things that you had to do?	<input type="checkbox"/>				

In the last month, how often have you been able to control irritations in your life?	<input type="checkbox"/>				
In the last month, how often have you felt that you were on top of things?	<input type="checkbox"/>				
In the last month, how often have you been angered because of things that happened that were outside of your control?	<input type="checkbox"/>				
In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	<input type="checkbox"/>				

Appendix D

COVID-19 Supplementary Material

The questions in this scale ask about your feelings and thoughts during the COVID-19 pandemic. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them, and you should treat each one as a separate question. The best approach is to answer fairly quickly. That is, don't try to count up the number of times you felt a particular way; rather indicate the alternative that seems like a reasonable estimate. Please select one response per question.

Check a response for each of the following statements:	Never	Almost Never	Sometimes	Fairly Often	Very Often
I have felt affected as if something serious will happen unexpectedly with the pandemic.	<input type="checkbox"/>				
I have felt that I am unable to control the important things in my life due to the pandemic.	<input type="checkbox"/>				
I have been nervous or stressed by the pandemic.	<input type="checkbox"/>				
I have been confident about my ability to handle my personal pandemic-related problems.	<input type="checkbox"/>				
I have felt that things are going well (optimistic) with the pandemic.	<input type="checkbox"/>				
I have felt unable to cope with the things I have to do to control the possible infection.	<input type="checkbox"/>				
I have felt that I can control the difficulties that could appear in my life due to the infection.	<input type="checkbox"/>				

have felt that I have everything under control in relation to the pandemic.	<input type="checkbox"/>				
I have been upset that things related to the pandemic are out of my control.	<input type="checkbox"/>				
I have felt that the difficulties accumulate in these days of the pandemic and I feel unable to overcome them.	<input type="checkbox"/>				

Appendix E

Demographics Questionnaire

What is your gender?

- Male
- Female
- Non-binary/ third gender
- Prefer not to say
- Prefer to self-identify: _____

Which of the following best describes you?

Please select one answer

- Asian or Pacific Islander
- Black/African American
- Native American or Alaskan native
- White or Caucasian
- Multiracial or Biracial
- Hispanic/Latino
- A race/ethnicity not listed here: _____

Please indicate your class year:

- Class of 2024
- Class of 2023
- Class of 2022
- Class of 2021

Are you studying on-campus or remotely?

- On-campus
- Remotely

Which class are you participating in this study for?

- PSY 100
- SPM 100

Would you consider yourself a physically active student?

Yes

No

Are you on a sports team?

Yes

No

If you answered "Yes" to being on a sports team, please indicate which team: _____