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Demographic Disparities in College Students' Psychological Adjustment During COVID-19

by

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Honors Thesis

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Abstract

The goal of the present study was to explore psychological adjustment during the COVID-19 pandemic in undergraduate college students. Since March 2020, undergraduates have endured extended lockdowns, quarantines, and social distancing efforts that may affect mental health, especially for historically marginalized groups such as women and people of color. Furthermore, research on coping styles suggests that those who cope with a stressor such as a pandemic in healthy, adaptive ways may be protected against psychological difficulty. In February/March 2021 (Time 1) and again in April/May 2021 (Time 2), college students ($N = 277$) from two residential liberal arts institutions were measured on their psychological adjustment throughout the pandemic. Participants completed measures on depression, coping styles, and perceived barriers to mental health treatment. Results showed that female students outscored male students, and students of color outscored white students on depression. Results also showed that barriers to mental health treatment at Time 1 were significantly associated with higher depression at Time 2; however, neither “acceptance” nor “denial” coping styles served as protective factors among students who perceived barriers. This study highlights the necessity for expanding the accessibility of mental health services due to the COVID-19 pandemic, particularly for students with historically marginalized identities and who perceive barriers to accessing care.

Keywords: undergraduates, COVID-19, depression, gender, race, psychological wellbeing, coping, barriers to care, demographic disparities, college students

Demographic Disparities in College Students' Psychological Adjustment During COVID-19

Undergraduate college students are a vulnerable population to mental health difficulties and death by suicide (Lipson et al., 2018; Ebert et al., 2019). Students in college are often at risk for mental health difficulties as a result of academic pressures, separation from their homes, exposure to drugs and alcohol, stressors with roommates and romantic partners, as well as work-related and financial stress (Pedrelli et al., 2014; Coiro et al., 2017). In addition to these situational factors, college populations are unique in that nearly 75% of mental illnesses have their first onset by one's mid-20s (Kessler et al., 2007). In 2021, up to 44% of college students reported symptoms of depression and anxiety in the past year; up to 75% of struggling students indicated they were reluctant to seek professional help (Mayo Clinic, 2021). Furthermore, in the academic year 2020, more than 1 in 3 college students was estimated to have at least one mental health symptom (American College Health Association, 2020). Notably, students who identify with one or more marginalized identities are especially likely to perceive barriers to accessing mental health care. Because college students are particularly susceptible to mental health concerns, research that sheds light on mental health problems students face during and following COVID-19 is essential, as the pandemic has increased the risks of psychological difficulties; specifically, among different student demographic populations (Towbes & Cohen, 1996).

College Students' Mental Health Difficulties

Current psychological research on college students' mental states has put students from marginalized groups at the forefront of risk—including women, BIPOC (Black, Indigenous, People of Color), and low-income students (Soria et al., 2020; Prowse et al., 2021). Even before the onset of the pandemic, college students who identified with one or more historically

marginalized groups were particularly susceptible to psychological difficulties (Cheng et al., 2013; Lipson et al., 2018).

Women and gender-nonconforming college students have been consistently reported as a high-risk group for psychological difficulty compared to their male counterparts (Mahmoud et al., 2015; Seehuus et al., 2021). Women are often at greater risk for psychological problems than men due to social and economic factors, including pregnancy, caregiving responsibilities, higher chances of living in poverty, higher risks of physical and sexual abuse, gender inequality, and additional emotional stressors (Eaton et al., 2012; Mental Health Foundation, 2021).

Additionally, BIPOC students face the risks of racial and ethnic discrimination and subjection to structural xenophobia and racism; substantial evidence supports a link between discrimination and adverse mental health outcomes (Lee et al., 2021; Oh et al., 2021).

Students who identify with more than one historically marginalized group may be at higher risk for psychological difficulty. Intersectional perspectives consider the meaning and consequences of multiple group membership categories experienced simultaneously, such as students who identify as BIPOC and as women (Crenshaw, 1991). Black female college students often encounter the effects of both sexism and racism on college campuses, which can pose heightened psychological risks (Bernard et al., 2017). For example, issues such as racial microaggressions, impostor syndrome, and susceptibility to group stereotype endorsement have been linked to higher levels of depression in Black female college students at predominantly white institutions (PWIs). A 2020 study of 414 Black undergraduate women showed that exposure to stereotype threat and impostor beliefs significantly predicted depression levels (Hill, 2020).

Barriers to Mental Health Treatment

Unfortunately, college students have consistently reported severe barriers to mental health treatment and subsequently underutilize services for various reasons, including negative treatment expectations and structural barriers such as cost and location (Arnaez et al., 2020; Singh et al., 2021). Additional barriers for college students have been reported as lack of time in their schedules, questioning the seriousness of their needs, and feelings of anxiety about speaking to a mental health practitioner (Horwitz et al., 2020).

Students who identify as BIPOC may face unique stigmas and barriers to mental health care at their universities, potentially posing higher risks for psychological conditions. Previous research has shown that racial and ethnic minority students often face effects of self-stigma and perceived stigmatization by others when considering their utilization of mental health care (Cheng et al., 2013; Lipson et al., 2018). Self-stigma, or personal stigma, refers to the negative attitudes or internalized shame an individual may have regarding their *own* mental health condition; in contrast, public stigma may involve the negative attitudes that others have about mental illness (Borenstein, 2020). Specifically, BIPOC students' self-stigmas and perception of stigma from others may be complexified by their relationships with their own racial groups, with other racial groups, and with society (Cheng et al., 2013). For example, different racial and ethnic communities may differently perceive help-seeking attitudes toward mental health treatment. Shame and stigma have been found to be exacerbated in particular racial and ethnic groups. For example, many non-Western cultures may emphasize family hierarchy and emotional restraint (e.g., several Asian cultures) and may view seeking professional help as a counter to cultural values (Shea & Yeh, 2008; Gee et al., 2020; California Community Colleges Student Mental Health Program).

While these barriers have been firmly identified in the undergraduate college student population, their direct link to mental health outcomes is not well-established. Furthermore, the prevalence and effects of barriers to treatment must be examined in light of the currently ensuing pandemic.

COVID-19 & Mental Health Risk

The current mental health crisis in college-aged students has been deeply worsened by the COVID-19 (SARS-CoV-2) pandemic since March 2020, causing many disruptions in students' lives. Students are facing unique stressors such as worries about their health and their loved ones' health, limited social outlets, social distancing and isolation, and financial hardships (Chirikov et al., 2020; Soria & Horgos, 2020). In the Student Experience in the Research University (SERU) survey of 30,725 United States undergraduate students between May and July 2020, 35% screened positive for major depressive disorder (Chirikov et al., 2020). During the same time, 35% of a 707-student sample were found as experiencing significant levels of emotional distress (Hoyt et al., 2021). In concordance with these findings, COVID-19 has killed nearly 1,000,000 U.S. adults and caused immense economic difficulties; the losses attributed to the pandemic contribute to an impact of collective trauma and widespread grief (Crosby et al., 2020; Centers for Disease Control and Prevention, 2022).

From May to July 2020, students from one or more marginalized groups (e.g., women, BIPOC, low-income) were especially likely to experience financial hardships, academic obstacles, and anxiety and depression (Soria et al., 2020; Soria & Horgos, 2020). Specifically, women and gender non-conforming students have consistently shown higher levels of psychological distress during the pandemic than men (Hoyt et al., 2021; Hunt et al., 2021). COVID-19-related racism, discrimination, and xenophobia have also predicted anxiety and

depression symptoms in BIPOC college students (Ibarra-Mejia et al., 2021; Lederer et al., 2021; Oh et al., 2021).

Students with historically marginalized identities may be at particular risk for psychological difficulties during COVID-19. Research is needed to evaluate this perspective to assess for cumulative risk. Therefore, Aim 1 of the present study was to identify whether students' race and gender are differentially associated with their mental health. Specifically, I examined how racial and gender identities were related to students' self-reported depressive symptoms during COVID-19. I hypothesized that students of historically marginalized groups (e.g., women, BIPOC) would be at the most significant risk for one aspect of mental health—depression—during COVID-19. Furthermore, I hypothesized that the interaction between both identities (e.g., women who also identify as BIPOC) would be at a significantly higher risk for depression due to the intersection of the two identities formulating a higher cumulative risk.

Coping Mechanisms & Mental Health Risk During COVID-19

People in adverse situations cope differently; coping mechanisms are not always equal due to situational and personal factors (Scherer et al., 1988). Coping is defined by Coiro et al. (2017) as the voluntary efforts to regulate one's cognitive, behavioral, emotional, or physiological responses to an adverse or stressful situation. As COVID-19 has put people through conditions of stress and grief, it is essential to look at the association between coping styles and mental health, as coping has been found as a critical link to stress and mental health (Aldao et al., 2010). Identifying which coping contexts might protect against COVID-19-induced mental health concerns, such as depression, is essential. These findings might tell us how particular coping mechanisms can potentially protect against dire depressive symptoms during an adverse event. Positive ways of coping, such as "acceptance coping," have been found as

inversely related to mental health difficulties (Burker et al., 2005; Mahmoud et al., 2015; Coiro et al., 2017).

In contrast, maladaptive and negative coping mechanisms, such as “denial coping,” have been associated with higher depression levels (Mahmoud et al., 2012; Mahmoud et al., 2015; Coiro et al., 2017; Wongtongkam, 2019). In particular, adaptive coping mechanisms may play an essential role in decreasing the risk for severe depressive symptoms for students who perceive barriers to mental health treatment, as it has in previous studies (Burker et al., 2005; Gurvich et al., 2020). Adaptive coping styles that promote help-seeking and self-care may be protective for those who perceive stigma, structural barriers, or fears about seeking mental health services. Furthermore, helping to identify coping methods that protect against psychological difficulty during COVID-19 might illuminate and promote the benefits of coping; for example, less than half (43.25%) of a 2,031-student sample in 2020 indicated they felt they coped with their conditions adequately (Wang et al., 2020). If students are aware of the potential benefits of coping methods, perhaps we can promote additional wellbeing in student populations.

There is very little psychological research on coping styles amidst COVID-19, and more data is needed to connect coping to mental health in college populations. In the present study, Aim 2 was to identify which, if any, coping mechanisms mitigate the risk for depression in college students, particularly students who perceive barriers to accessing mental health care. I hypothesized that the adaptive method of “acceptance coping” would be associated with fewer depressive symptoms during COVID-19 among those who perceive barriers to treatment. In contrast, I anticipated that the maladaptive method of “denial coping” would be related to higher levels of depression during COVID-19 among those who perceive barriers to treatment.

Method

Participants

Participants were drawn from a short-term, longitudinal study of 424 undergraduate college students ($n_{female} = 254$, $M_{age} = 19.5$, $SD = 1.3$) recruited from two residential liberal arts institutions in the southeastern United States. For this study, participants who responded to a screening question indicating they had not utilized mental health treatment were eliminated from the dataset (see “Measures” section for details). Therefore, participants included in my analyses were 277 undergraduate college students ($n_{female} = 190$, $M_{age} = 19.5$, $SD = 1.3$).

Of the 277 participants in my sample, 68.6% identified as female and 31.4% identified as male. The majority of participants (53.8%) identified their race as White, 7.6% as Hispanic or Latino, 9.0% as Black or African American, 16.2% as Asian, 11.6% as multiracial, and 1.8% as another race, ethnicity, or origin. Second-year students made up most of the sample (36.8%), followed by first-years at 24.9%, fourth-years at 22.4%, third-years at 13.7%, and fifth-years or higher at 2.2%. Among my sample, 10.1% were international students, 23.8% were first-generation college students, and 25.3% were recipients of the Pell Grant. Overall, the participants accurately approximated the demographics at each liberal arts institution as a whole. The sociodemographic data from my sample is summarized in **Table 1**.

Table 1

Sociodemographic Characteristics of Participants

Demographic Variable		
	<i>n</i>	%
Gender		
Female	190	68.6%
Male	87	31.4%
Race		
White	149	53.8%
Hispanic or Latino	21	7.6%
Black or African American	25	9.0%
Asian	45	16.2%
Other	5	1.8%
Multiracial	32	11.6%
International Students	28	10.1%
Year in School		
First-Year	69	24.9%
Second-Year	102	36.8%
Third-Year	38	13.7%
Fourth-Year	62	22.4%
Fifth-Year	5	1.8%
Sixth-Year or more	1	0.4%
First-Generation College Student	66	23.8%
Pell Grant Recipient ^a	70	25.3%

Note. *N* = 277. Participants were on average 19.5 years old (*SD* = 1.3).

^a Pell Grants are awarded to undergraduate students who display exceptional financial need (U.S. Department of Education, 2022).

Procedure

Approval was obtained from both institutional review boards (IRBs) before recruiting participants for the study in the fall of 2020. Study personnel sent recruitment messages through daily email forums that informed students about ongoing campus events, news, and research.

Study personnel also distributed recruitment materials via email, student group messaging forums, university-sponsored social media platforms, and an electronic flyer with pertinent study information. Recruitment materials included a link and a QR code to a web-based survey.

Students participated in two waves of data collection: Time 1 occurred in February/March 2021 (T1), and Time 2 occurred in April/May 2021 (T2). At each time point, participants completed a 30-minute-long web-based survey via Qualtrics that included questions about their demographic information and their academic and psychosocial adjustment during COVID-19. Participants were instructed to complete the survey independently and away from any potential distractions in their immediate environment. Students completed an informed consent form before answering any questions on the survey, affirming they were 18 years of age or older and enrolled at one of the two participating undergraduate institutions. Participants were assured that their responses would remain confidential and would be limited to the purposes of this study. When participants completed the survey, they were redirected to a debriefing page with a list of psychological resources and Primary Investigator (PI) contact information. At both T1 and T2, participants had the option of providing a school email address if they wished to receive a \$15 Amazon gift card as compensation for partaking in the research.

Measures

Depression

Depressive symptomology was assessed with the 20-item, self-report Center for Epidemiologic Studies Depression Scale (CES-D Scale; Radloff et al., 1977). Participants were asked to report the extent to which they had been experiencing symptoms such as irritability, focus troubles, motivation, hopelessness, sadness, and restlessness. Responses were on a Likert scale of 0 (*rarely or none of the time, less than 1 day*) to 3 (*most or all of the time, 5-7 days*).

Sample items include, “I felt depressed,” “I did not feel like eating; my appetite was poor,” “I felt my life had been a failure,” and “I felt that people dislike me.” Scores for all items were summed to create a total CES-D depression score. Scores range from 0 to 60, with higher scores indicating greater depressive levels. A cutoff score of 16 or greater reflects individuals at risk for clinical depression; specifically, 0–16 reflecting no to mild depressive symptoms, 16–23 reflecting moderate depressive symptoms, and 24–60 reflecting severe depressive symptoms (Radloff et al., 1977). The CES-D is a reliable and valid measure, with high internal consistency and sufficient test-retest reliability. Cronbach’s alpha values were observed at 0.92 and 0.92 at T1 and T2 in our sample.

Coping

Students were asked to report what they have generally done and felt when they have experienced difficult or stressful events in the last several months using the multidimensional COPE Inventory (Carver et al., 1989). Participants responded to each item on a Likert-type scale of 1 (*never*) to 4 (*often*). The COPE Inventory measures 6 different coping styles, including problem-focused coping, emotion-focused coping, and disengagement-focused coping. The emotion-focused coping dimension contains five subscales of coping. In the present study, I analyzed the results of the Acceptance and Denial subscales on the emotion-focused coping dimension.

Acceptance Coping Subscale. “Acceptance” is argued as “a functional coping response in that a person who accepts the reality of a stressful situation would seem to be a person who is engaged in the attempt to deal with the situation” (Carver et al., 1989). Acceptance coping was measured with four questions on the emotion-focused COPE Inventory: “I learn to live with it,” “I accept that it has happened and that can’t be changed,” “I get used to the idea that it

happened,” and “I accept the reality of the fact that it has happened.” These four items were averaged to create the COPE acceptance subscale mean score, ranging from a score of 1 to 4.

Internal consistency of this measure was acceptable, with a Cronbach’s alpha value of 0.68 at T1.

Denial Coping Subscale. “Denial” is the opposite of acceptance, operationalized in the COPE Inventory as “refusal to believe that the stressor exists or trying to act as though the stressor is not real” (Carver et al., 1989). Denial coping was measured with four questions on the emotion-focused COPE Inventory: “I refuse to believe that it has happened,” “I pretend that it hasn’t really happened,” “I act as though it hasn’t ever happened,” and “I say to myself ‘this isn’t real.’” These items are scored and averaged to create the COPE denial subscale mean score, ranging from 1 to 4. The internal consistency of this subscale was acceptable, with Cronbach’s alpha observed at 0.79 at T1.

Barriers to Mental Health Treatment

Barriers to mental health treatment were assessed with the 17-item Barriers to Mental Health Treatment measure (Marques et al., 2010). Participants were first asked to answer a screening question asking: “Have you ever received mental health treatment, considered seeking mental health treatment but decided not to, or thought you would benefit from seeing a mental health professional?” If the student answered “yes,” they would proceed to answer questions indicating whether any of the following barriers caused them to delay or avoid seeking mental health treatment. The Barriers to Mental Health Treatment measure consists of items from three subscales: Logistic & Financial; Stigma, Shame, & Discrimination; and Perception & Satisfaction. Sample items include, “I was worried about how much it would cost,” “I felt ashamed of needing help for my problems,” “I was afraid of being criticized by my family if I sought psychiatric help,” and “I was not satisfied with the services that were available.”

Responses followed a “Yes” or “No” response scale; the total number of “Yes” responses was summed to create the barriers to mental health treatment total score. Cronbach’s alpha was observed at 0.77 at T1.

Results

Plan of Analysis

I first conducted descriptive statistics and bivariate correlations. Next, I ran a 2(Race) X 2(Gender) analysis of variance (ANOVA) to examine whether there were mean differences in depressive symptoms depending on race and gender. Finally, I conducted multiple regression analyses to explore the across-time associations between two types of coping styles (acceptance vs. denial), perceived barriers to mental health treatment, and symptoms of depression. I utilized the IBM SPSS Statistics 27.0 program to conduct data analysis.

Descriptive Statistics

I conducted descriptive statistics for total depression scores at T1 and T2, acceptance and denial coping at T1, and barriers to mental health treatment at T1. Means, standard deviations, and correlations for each study variable are depicted in **Table 2**. On average, depression scores at T1 and T2 exceeded the clinical cutoff of 16 on the CES-D at T1 and T2 (Radloff et al., 1977). Participants reported a mean score of 3.37 for their acceptance coping, suggesting that they employ acceptance coping between “sometimes” and “always.” Participants reported using denial coping, between “never” and “rarely” ($M = 1.66$).

Bivariate Correlations

As shown in **Table 2**, T1 barriers to mental health treatment were significantly and moderately related to depression scores at T2, such that more barriers were associated with

higher total depression scores at T2. Contrary to my hypotheses, neither T1 acceptance coping nor T1 denial coping was significantly correlated with T2 total depression scores.

Table 2

Descriptive Statistics and Bivariate Correlations for Study Variables

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. T1 Depression	277	25.07	11.56	—	-.06	.24	.70**	.34**
2. T1 Acceptance	277	3.37	.49	-.06	—	-.27	-.03	-.04
3. T1 Denial	277	1.66	0.63	.24	-.27	—	.15*	.19
4. T2 Depression	254	24.49	11.62	.70**	-.03	.15*	—	.33**
4. T1 Barriers	277	6.61	3.69	.34	-.04	.19**	.33**	—

Note. T1 = Time 1. T2 = Time 2.

* $p < .05$. ** $p < .001$.

One-Way Analysis of Variance: Race, Gender, Depression

A one-way, 2(race) X 2(gender) analysis of variance (ANOVA) was conducted to test the hypothesis that female-identifying and BIPOC students would be found more susceptible to depression. The ANOVA revealed main effects of race ($F(1, 253) = 10.63, p < .01$, partial $\eta^2 = .041$) and gender ($F(1, 253) = 4.58, p < .01$, partial $\eta^2 = .018$) on depression with BIPOC students outscoring White students and female students outscoring male students (**Table 3**). There was no significant interaction between race and gender in the ANOVA, meaning that race and gender did not cumulatively create a higher risk for depression.

Table 3

Means, Standard Deviations, and One-Way Analyses of Variance in T2 Depression Scores as a Function of Race & Gender

	Depression						<i>F</i> (1, 254)	η^2
	BIPOC		White		Total			
race							10.63*	.041
gender	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	4.58*	.018
Female	28.19	12.18	23.10	10.30	25.56	11.50		
Male	24.83	12.58	19.86	10.34	22.09	11.60		
Total	27.21	12.34	22.06	10.39	24.49	11.61	.002	.00

Note. $R^2 = .07$.

* $p < .05$.

Multiple Regression Analysis

I conducted two regression analyses to assess the associations between barriers to mental health treatment, coping style (acceptance or denial), and depression. I separately included acceptance and denial coping as moderators to examine whether the association between barriers to mental health treatment and total depression scores depends on one’s level of coping. Findings from the multiple regression analyses for both acceptance and denial coping are summarized in

Table 4.

Acceptance Coping

In the first multiple regression analysis, I included T1 barriers, T1 acceptance coping, the interaction between the two, and T1 depression as predictors of T2 depression. Barriers to mental health treatment at T1 significantly predicted depressive symptoms at T2 when controlling for T1 depression, ($B = .30, t(252) = 2.00, p = .046$) and explained a significant proportion of variance in depressive symptom scores, $R^2 = .50, F(4, 253) = 62.54, p < .001$. Findings suggest

that high barriers to mental health treatment contribute to later depressive symptoms above and beyond initial levels of depression. Subsequently, acceptance coping at T1 did not serve as a significant predictor of depressive symptoms at T2 when controlling for T1 depression, ($B = .62$, $t(252) = .59$, $p = .556$). The interaction between barriers to mental health treatment and acceptance coping was not a significant predictor of depressive symptoms at T2 when controlling for T1 depression, ($B = -.45$, $t(252) = -1.60$, $p = .112$). These results demonstrate that, contrary to my hypothesis, acceptance coping did not decrease the risk for T2 depressive symptoms, nor did it serve as a protective factor for students who perceived barriers to mental health treatment.

Denial Coping

In the second multiple regression analysis, I included T1 barriers, T1 denial coping, the interaction between the two, and T1 depression as predictors of T2 depression. Barriers to mental health treatment significantly predicted depressive symptoms, ($B = .54$, $t(252) = 2.01$, $p = .045$) and explained a significant proportion of variance in depressive symptom scores, $R^2 = .50$, $F(4, 253) = 61.64$, $p < .001$. Similar to my first regression analysis results, findings suggest that as barriers to mental health treatment increase, depressive symptoms increase. Furthermore, denial coping at T1 did not serve as a significant predictor of depressive symptoms at T2 when controlling for T1 depression ($B = -.58$, $t(252) = -.67$, $p = .504$). The interaction between barriers to mental health treatment and denial coping was not a significant predictor of depressive symptoms at T2 when controlling for T1 depression, ($B = .01$, $t(252) = .90$, $p = .370$). These findings show that, inconsistent with my hypothesis, denial coping neither increased the risk for T2 depressive symptoms nor did it serve as a particular risk factor for depression among students who perceive many barriers to mental health treatment.

Table 4

Regression Analysis: Types of Coping and Barriers to Mental Health Treatment

Variable	B	β	95% CI		p	t
			LL	UL		
Acceptance Coping						
T1 Barriers to Treatment	.30	.10	.01	.60	.046*	2.00
T1 Acceptance Coping	.62	.03	-1.45	2.68	.556	.59
T1 Acceptance Coping x Barriers	-.45	-.07	-1.01	.11	.112	-1.60
Denial Coping						
T1 Barriers to Treatment	.05	.10	.01	.61	.045*	2.01
T1 Denial Coping	-.58	-.03	-2.23	1.12	.504	-.67
T1 Denial Coping x Barriers	.01	.04	-.24	.65	.370	.90

Note. CI = confidence interval; LL = lower limit; UL = upper limit. *Note:* T1 = Time 1.

**p* < .05.

Summary of Findings

In these statistical analyses, a one-way ANOVA revealed race and gender differences in mean levels of depression, with BIPOC students outscoring White students and women outscoring men. However, there was no significant interaction between race and gender. Finally, the multiple regression analysis showed that high levels of T1 mental health treatment barriers were associated with higher levels of depression at T2. Furthermore, neither acceptance nor denial styles at T1 predicted depression at T2. The interaction between each coping style and barriers to mental health treatment was not significant, meaning that the association between T1 barriers to mental health treatment and T2 depression did not depend on coping style.

Discussion

Main Findings

The results of the present study can help researchers understand the extent to which particular demographic identities (e.g., gender, race), barriers to mental health treatment, and certain coping styles (e.g., acceptance, denial) are associated with depressive symptomology in college students. Drawing on existing research on mental health disparities and coping, I evaluated undergraduate college students' experiences of depression and engagement with both adaptive and maladaptive coping strategies. This study helps contribute to the relevant and growing literature showing the dire mental health implications of COVID-19 in undergraduate college students.

Demographic Differences in Depression

Aim 1 of the present study was to identify whether students with historically marginalized identities were at higher risk for depressive symptoms during COVID-19. The sample mean on the depression measure at T1 and T2 exceeded 16, meaning that, on average, students reported clinical levels of depression. More specifically, I examined the sociodemographic identities of race, gender, and the intersection of the two to identify whether these characteristics were differentially associated with higher levels of depression. As hypothesized, women and BIPOC students reported higher depression scores than men and White students. These results are consistent with the existing body of research before and during COVID-19, where undergraduate students of color and undergraduate women have been more susceptible to depressive symptoms (Lipson et al., 2018; Seehuus et al., 2021; Singh et al., 2021). Furthermore, in the context of outcoming data on COVID-19-related depression, my

results contribute to the notion that undergraduate women and people of color are at elevated risk for psychological difficulty (Oh et al., 2021; Saltzman et al., 2021).

Contrary to expectations, the interaction between race and gender (e.g., a student who identifies as a BIPOC woman) did not significantly predict depressive symptoms. Much existing research on the interaction of gender identity and race as risk factors for depression has shown Black women at higher risk than their White and male counterparts (Bernard et al., 2017; Hill, 2020; Jones et al., 2022). While I had hypothesized that students from one *or more* historically marginalized groups would experience the highest levels of psychological distress, there are possible explanations that the interaction of race and gender were not significant predictors of depression. One possible reason for the lack of significance in this finding could be that 147 participants were removed from my analyses since they indicated they had not sought or thought about seeking mental health care (see "Participants" section for details). As these participants were removed from analyses, they may not have perceived themselves to have a mental health condition, due to cultural beliefs and stigmas around mental health, despite screening high for depressive symptoms. For example, existing research on Black women's mental health has theorized the "Strong Black Women Schema" as a traditional stereotype that may preclude these individuals from receiving mental health treatment (Castelin, 2019; Settles et al., 2010; Ubesie et al., 2020).

Barriers, Coping Styles, and Depression

The second aim of this study was to identify which coping contexts, if any, protected against depressive symptoms during the pandemic among students who perceived barriers to mental health treatment. Undergraduate college students may perceive unique barriers to accessing mental health services compared to the general population, such as self-stigma, shame,

cultural values, and structural barriers (Cheng et al., 2013; Lipson et al., 2018). These perceived barriers have been linked to worse mental health states, and during the pandemic, one would expect potentially higher barriers to accessing care (Arnaez et al., 2020; Singh et al., 2021).

Results showed that perceived barriers to mental health treatment at T1 significantly predicted depression levels at T2 when controlling for depression at T1. Consistent with my correlational findings, these results support the psychological theory that perceived barriers such as time, stigma, financial burdens, or others might disincentivize students from seeking psychological care (Arnaez et al., 2018; Ebert, 2019; Marques, 2010). As a result, symptoms of depression and other mental health conditions may be exacerbated by the inability to seek mental health treatment. Consistent with existing theory on mental health barriers, these data support the notion that perceived barriers to accessing psychological treatment can negatively impact college students' mental health. Despite the results on coping styles not being a significant predictor of T2 depression for those with barriers, these data corroborate the theory that mental health care barriers are prevalent and detrimental to college students' psychological health.

Subsequently, existing literature on coping mechanisms led me to hypothesize that students who utilized acceptance coping would experience fewer depressive symptoms, whereas students who used denial coping would experience more depressive symptoms. I looked at one adaptive coping style, "acceptance," and one maladaptive coping style, "denial," among students who perceived barriers to mental health treatment. Previous findings have shown adaptive coping methods as potential protective factors against psychological difficulties (Mahmoud et al., 2015; Coiro et al., 2017). I predicted that adaptive coping methods might promote help-seeking behavior and lessen the effects of perceived barriers and, therefore, depression at T2. In contrast, maladaptive coping methods have been consistently cited as a risk factor for depression,

anxiety, and stress, which I predicted would happen among students who engaged with these methods of coping (Coiro et al., 2017; Mahmoud et al., 2012; Mahmoud et al., 2015; Wongtongkam, 2019). Among students who experience barriers to mental health treatment, my hypotheses stemmed from the literature that help-seeking and adaptive behavior may lessen the potentially harmful psychological effects of the barriers they face (Burker et al., 2005; Gurvich et al., 2020).

Contrary to my hypotheses about acceptance and denial coping among students who perceived barriers, neither coping style at T1 significantly predicted depressive symptoms at T2, nor did the interaction between barriers and T1 coping style predict T2 depression. While preceding research on coping styles has shown significant protective benefits of adaptive coping and risks for maladaptive coping, there are potential reasons for the lack of significance of coping on depression levels in this study. Primarily, I solely analyzed coping strategies as a factor of students who perceived barriers to mental health treatment. Among these 277 students who had indicated they had experienced a mental health condition, acceptance nor denial coping may not have served as strong enough protective or risk factors to influence depression. There may not have been a strong enough relationship between coping and barriers for coping styles to add protection or risk among students who perceived barriers. Additionally, the acceptance and denial subscales were only 4 items each on the COPE Scale; because I did not analyze other subscales of the COPE, my results may not fully capture the impacts of adaptive and maladaptive coping styles. Other coping style subscales of the COPE—including planning, instrumental support, emotional support, and positive interpretation—may be more likely to serve a protective function and should be analyzed in future studies.

Limitations of the Present Study & Future Research Directions

Despite this study's strengths and significant results, there were limitations to the study design and analyses. The study's design enabled me to draw substantial conclusions about the severity of depressive symptomology and the corresponding demographic differences in a college sample. However, due to the design and analyses of my work, I was unable to analyze demographic groups in their entirety and capture a fully intersectional analysis of demographic disparities in mental health during COVID-19. This study focused on the intersection of two prominent demographic identities of college students: gender and race, to assess cumulative risk for depression. However, I recognize that a limitation of the present study is that other demographic identities for risk and mental health assessments may also contribute to student psychological functioning. An intersectional approach considers the meaning and consequences of multiple group membership categories experienced simultaneously (Crenshaw, 1993). Family household income, sexual identity, ability, weight, nationality, and religion may be additional factors impacting students' mental health during COVID-19.

For example, family household income has been prominently found as a predictor of depression in college populations before and during the pandemic (Andrews & Wilding, 2004; Hoyt et al., 2021; Oh et al., 2021). Students from low-income backgrounds may face high amounts of financial stress due to student loan debt, work studies, jobs, and other contributing factors of their identities that can contribute to mental health difficulties (Archuleta et al., 2013; Education Data Initiative, 2022). Furthermore, low-income undergraduates may have faced increased difficulty due to the financial strain of the pandemic, resulting in housing insecurity, food insecurity, and heightened levels of poverty. For these students—disproportionately, students of color and women—the loss of access to on-campus jobs, loss of their families' jobs,

and the general COVID-19 economic recession exacerbated economic inequality and, therefore, personal mental health (Rodríguez-Planas, 2020; Soria et al., 2020; Hoyt et al., 2021). Family household income is one example of a sociodemographic identity of college undergraduates that may have contributed a disproportionate amount to one's mental health; however, we did not include this in our analyses, which was a primary limitation. As we continue analyses of the two waves of data from 2021, a future direction of utmost priority is to conduct statistical analyses that include family household income. Furthermore, future research directions of the present study will analyze additional sociodemographic variables with regard to gender and race to contribute to an intersectional analysis of students' identities. Furthermore, in the current sample, there were no participants who self-identified beyond the gender binary of male and female, so we do not presently have data on students who identify as transgender, gender non-conforming, or nonbinary. In future studies, we hope to continue collecting data and analyzing sociodemographic variables such as gender, sexuality, international student status, parental educational attainment, etc.

An additional limitation to my present analyses is that I looked at the race variable as one's status as "White" or "BIPOC" (Black, Indigenous, People of Color). However, I did not independently analyze the full range of racial/ethnic identities (e.g., Asian, African American) that fall under the umbrella of BIPOC. Categorizing individuals from multiple races and ethnicities as BIPOC does not leave space for a nuanced understanding of how individuals from differing backgrounds experience depression or how their perceptions of barriers to mental health care affect their levels of depression. For example, due to the COVID-19 pandemic originating in China, Asians and Asian-Americans have faced alarmingly high levels of xenophobia and racism in the U.S., in both direct and indirect forms. Research has shown that

Asian and Asian-American college students have faced negative psychosocial implications due to the rise in racism in 2020 and 2021, including increased anxiety and depression (Devakumar et al., 2020; Haft & Zhou, 2021). Furthermore, Asian students may face unique levels of cultural stigmas and shame for engaging with mental health support (see “Barriers to Mental Health Treatment” section of “Introduction”). One’s racial and ethnic identity may have unique considerations regarding mental health. Therefore, a future priority for the present research is to aggregate racial and ethnic categories separately and analyze them in terms of depressive symptomology accordingly. We plan to continue our work from an intersectional and equity-focused lens by analyzing depressive levels as a factor of different racial and ethnic groups.

Implications of the Present Study

In conclusion, my results suggest that this study’s sample of undergraduate college students faced significant mental health challenges during the pandemic, including depression. In fact, for the sample, elevated levels of depression persisted across two time points or about four months. Higher education leaders and mental health advocates on college campuses should consider the possibility that the effects of the COVID-19 pandemic on student mental health may be long-lasting and likely to affect students from historically marginalized groups. While mask mandates are beginning to lift, vaccination rates are increasing, and social connectedness is rising in 2022, mental healthcare services' expansion remains a priority. From this point forward, mental health practitioners, educators, and others on college campuses must recognize that each graduating college class that cycles through the higher education system will have been impacted by COVID-19 and its aftermath in some form.

Furthermore, across college campuses and in the outside world, perceived barriers to mental health treatment remain a pressing problem and potential cause of severe mental health

difficulties. Many students continue to be afraid or unsure how to initiate the process of seeking mental health support. University leaders should promote help-seeking and increase access to psychological support, such as free mental health counseling, crisis intervention resources, and in-person and virtual psychiatric care. Additionally, administrators and university leaders must prioritize these support networks to be widely advertised and accessible in and out of the classroom (Salimi et al., 2021). Additionally, these services must be expanded in a culturally competent and sensitive manner for different demographic groups that perceive stigmas in accessing mental health care. Psychological research demonstrates that one's therapist's cultural and racial identities are often critical for patients' satisfaction with care and can impact how they respond to services (Meyer & Zane, 2013). Therefore, for students attending undergraduate institutions, we must hire clinicians of many racial and cultural identities who represent the student population.

The present study provides a critical foundation for illuminating demographic disparities in depression and the effect of perceived barriers to mental health care on college students' mental health amidst COVID-19. Future research must continue to focus on data collected during the pandemic and as it continues to evolve. Higher education institutions must aim to provide students, especially those with marginalized identities, with mental health care and other support services that promote wellbeing during a challenging time in their lives.

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