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Understanding college student emotional functioning during COVID-19

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UNDERSTANDING COLLEGE STUDENT EMOTIONAL FUNCTIONING DURING COVID-19

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ABSTRACT

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The novel coronavirus has resulted in mass infection and death. To prevent spread of the virus, colleges and universities shut down and transitioned to remote learning, which mandated all college students to leave residential housing and relocate to a permanent address. Previous literature suggests college students who experienced housing displacement due to a natural disaster reported heightened distress and poorer overall functioning (Davis, Grills-Taquechel, & Ollendick, 2010). Prior to the COVID-19 outbreak, college student mental health was deemed a public health concern, however, it is expected to worsen following the outbreak (Galea, Merchant, & Lurie, 2020). Researchers suggest peer support and connection buffers against worsened psychological symptoms when students experience disaster (Kuhl & Boyraz, 2017). This study seeks to understand pre-COVID place of residence and campus connectedness as a predictor for emotional functioning two months into the pandemic. A moderated regression analysis was used to evaluate if campus connectedness and emotional functioning varied as a function of place of residence before the outbreak. Findings suggested no significant interaction between pre-COVID place of residence and campus connectedness, however, exploratory analyses revealed that gender and trauma history affect emotional functioning among students. Implications of this research suggest that historical trauma should be

considered for students who experience disaster and, perhaps, universities should adopt a trauma-informed approach to welcome students back on campus during the pandemic.

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INTRODUCTION

On March 13th, 2020 the United States of America declared state of emergency due to the increasing spread of the novel coronavirus (COVID-19) mandating all Americans to shelter in place, practice social distancing, and quarantine if necessary (World Health Organization, 2020). As predicted, the pandemic has resulted in mass infection. In particular, New York City was deemed the United States epicenter for infection and death rates due to COVID-19 (Bialek et. al., 2020). Preventative efforts to decrease exposure to the virus and prevent communal spread included the closure of businesses and university campuses across the nation, sending all college students off campus to a permanent location. Given significant disruption to daily life, reported deaths, and prevention efforts that mitigate risk of infection, there is concern for unintended consequences emerging from the stress of an unfamiliar virus (Galea, Merchant, & Lurie, 2020). Little is known about college student mental health during the pandemic, particularly what factors might impact mental health such as the decrease of social support, or the impact of an unprecedented relocation. The purpose of this study seeks to understand the relationship between place of residence and perceived connectedness to school for college student mental health.

College student mental health

Young people aged 18 to 24 are at risk for developing a psychiatric disorder (Kessler et. al., 2005), and make up a large portion of the college student population. Before the global pandemic outbreak, college student mental health was a national problem (Auerbach et. al., 2016). One in three college students reported they were too depressed

to function (American College Health Association, 2009), while 40-50% of students reported suicidal ideation in a given year (Ploskonka & Servaty-Seib, 2015). Among this group, female students disclosed more symptoms of depression, anxiety, and suicidal ideation compared to male students (Auerbach, et. al., 2019; Stephenson, Pena-Shaff, & Quirk, 2006), who were less likely to seek and receive treatment for mental health concerns (Seehuus, Moeller, & Peisch, 2019).

In addition to documented college student distress literature, stressful life events may be experienced on campuses, such as gun violence, natural disaster, or other traumatic events that can exacerbate current functioning. For example, the *New York Times* captured experiences of students who lived on campus before the COVID-19 outbreak. When surveyed after the mandated housing relocation in March, students reported increased fear, hopelessness, and stress due to the nature of the relocation in the middle of the semester (Hartocollis, 2020). When crisis is experienced, ineffective responses from organizations can increase fear and psychological strain on an individual, such that disease outbreak response from an institution might directly impact levels of stress in communities (Kelloway, Mullen, & Francis, 2012).

Understanding the role of a campus in time of crisis

College campuses provide an environment where emerging adults live and learn in the same space, typically away from home for the first time. An expert in the field, Arnett (2016), claimed college students are unusual compared to their non-college attending peers, such that the college community is a reflection of independent living, away from parents for the first time. However, when this environment is threatened or vulnerable, college students are faced with a unique circumstance (Kapucu & Khosa, 2013). For

example, following gun violence on a campus, students reported a dramatic increase of anxiety and post-traumatic stress symptoms (Boffa et. al., 2016). After the natural disaster of Hurricane Katrina, students who were required to unexpectedly move off campus due to the disaster reported more post-traumatic stress symptoms and depression compared to students who did not experience housing displacement (Davis, Grills-Taquechel, & Ollendick, 2010).

Unfortunately, exposure to disaster or traumatic events during college years is common (Overstreet, Berenz, Kendler, Dick, & Amstadter, 2017; Read et. al., 2011), and many students enter their first year of university with a previous history of trauma (Anders, Frazier, & Shallcross, 2012). Specifically, approximately 66% of freshman students have experienced or witnessed an upsetting life event before college (Read et. al., 2011). Students who experienced traumatic events before college were more likely to report suicidal ideation and non-suicidal self-harm while in college, and were at risk for developing more severe disorders (Nock et. al., 2008).

Importance of student social support

A cited protective factor to combat emotional distress is peer support and connectedness to campus (Lee, Keough, & Sexton, 2002; Kuhl & Boyraz, 2017; Shakespeare-Finch & Green, 2013). Perceived social connectedness can predict positive mental health outcomes during college (Hefner & Eisenberg, 2009), such that self-perceptions of belonging to a social group is particularly important for college students (Lee, Draper, & Lee, 2001). Prior research has investigated the impact of social connectedness on mental health outcomes, and found that perceived low social connectedness predicted self-reported symptoms of depression (Armstrong, Oomen-Early, 2009; Lee, Goldstein, Dik,

& Rodas, 2020). In fact, recent data revealed that perceived social support and levels of connectedness might be an important factor for limiting self-injurious thoughts and behaviors among this population as well (Macrynikola, Miranda, & Soffer, 2018).

Campus connectedness

It is established in the literature that perceived support and connectivity are protective factors for emotional distress. When students feel connected to their social network there is decreased risk of loneliness and isolation (Van Orden, et. al., 2008), increased likelihood of seeking help for a mental health problem, and decreased psychological distress (Bales et. al., 2015; Samuolis, Griffin, Mason, & Dekraker, 2017). Greater reports of perceived campus connectedness were also found to predict higher levels of resilience (Pidgeon, Rowe, Stapleton, Magyar, & Lo, 2014), therefore lessening the risk of student mental health issues.

College student place of residence

The person-environment theory posits college student behavior and perception of the social world are a function of the environment (Feldman, Ethington, & Smart, 2001), sometimes explored in college student psychological well-being literature (Gilbreath, Kim, & Nichols, 2011). To further understand the impact environment may have on student behavioral and emotional functioning, researchers examined place of residence for students to understand this further. Findings suggested students who lived on campus reported stronger social support networks and more connectedness (Schudde, 2011), while students who lived off campus reported more anxiety and depressive symptoms (Beiter et. al., 2015).

In general, little is known about the impact of perceived connectedness and place of residence on emotional functioning during the COVID-19 pandemic.

Current study

The present study attempts to understand experiences of college students after a state of emergency was declared due to the novel coronavirus. The effects of perceived campus connectedness and emotional functioning for students during the COVID-19 pandemic is unknown. Further, there is no research on perceived connectedness for students who lived on campus or off campus before the COVID-19 outbreak. The present study considers student self-reports of campus connectedness and emotional functioning during the COVID-19 spring semester campus shutdown. Given previous data on perceived social support, emotional functioning, and impact of pre-COVID place of residence, it was hypothesized there will be an interaction between connectedness and pre-COVID place of residence on emotional distress. Specifically, the strength of social support and emotional functioning relationship will be influenced by pre-COVID place of residence, such that students who lived on campus pre-COVID will report more campus connectedness and lower emotional distress.

METHOD

Participants

Criteria for participation in the study included full-time enrollment in an undergraduate institution before the COVID-19 outbreak. To capture experiences of students who permanently reside on the east coast of the United States, responses were excluded for participants whose primary residence was not New York, New Jersey, or Connecticut. Participants provided consent before beginning the survey, which explained study purpose and procedures.

The sample included 281 participants composed of 135 males and 146 females. The ethnic breakdown was 47% White, 25% Asian, 16% Black or African American, 2% American Indian or Alaska Native, 4% Native Hawaiian or Other Pacific Islander, or 6% Other. Participants permanently resided in one of three states, 60% in New York, 31% in New Jersey, and 9% in Connecticut.

Procedure

This study used a cross-sectional design to collect college student participation using the Qualtrics Data Panel. Data was collected two months following university closures in May, 2020. All study procedures were reviewed and approved by the university institutional review board. The study contained demographic information and items that measured campus connectedness and emotional functioning.

Measures

Demographic questionnaire. Participants completed questions on gender, class rank, ethnicity, and pre-COVID place of residence (on or off campus).

Previous exposure to trauma. Participants were asked, "Before the spread of COVID-19, did you experience or witness an upsetting event such as: a car or other serious accident, a disaster like a fire, flood, earthquake, or hurricane, seeing someone badly injured or killed, being physically or sexually assaulted, witnessing violent acts, or experiencing a terror- related incident? Or have you learned about one of these things happening to someone you are close to?" Answer options for this question were "yes" (1), or "no" (0).

Campus connectedness. To measure connectedness in this sample, 3-items were used on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). The item scores were re-coded to reflect the question options, -2 = strongly disagree, to 0 = neither agree or disagree, to +2 = strongly agree. Participants were asked to rate their feelings of connectivity to three aspects of campus: peers, community belongingness, and professors. The three items used to measure this construct were influenced by the Social Connectedness Scale- Campus Version; designed to measure participant feelings of interpersonal closeness with the greater college community (Lee et. al., 2001). For example, the item "My friends feel like family" was adapted to "I feel connected to my peers." Summed together, a higher score represented higher perceived campus connectedness ($\alpha = .86$).

Emotional functioning. Eight items were created to assess the extent that participants felt anxiety, fear, numbness, depression, loneliness, hopelessness, anger, and difficulty concentrating in the past week. Examples of items used are "How frequently have you felt anxious in the past week?" or "How frequently have you had difficulty concentrating in school in the past week?" Participants responded to the 8-item scale using a 4-point

Likert scale (from 1 = not at all to 4 = multiple times everyday this week). Again, item scores were recoded to reflect question options, 0 = not at all to 3 = multiple times every day this week. A higher score represented more emotional distress ($\alpha = .89$).

Data analytic plan

All data were checked for missing variables in SPSS version 27 by members of the Liaison for Emerging Adults research team. There were no missing data for measures used in the current study. Pre-COVID place of residence and class rank were condensed into dichotomous variables and were dummy coded to 0, 1. Preliminary analyses included examination of distribution for connectedness and emotional functioning. Connectedness and emotional functioning variables were treated as continuous with meaningful values of 0. Next, Pearson correlations were run between pre-COVID place of residence, gender, previous trauma exposure, campus connectedness, and emotional functioning to further understand the relation among all variables in the model. To test the main hypothesis in a moderated regression, all variables were entered at one time point, with the PROCESS Macro v3.5 plug-in written by Andrew F. Hayes (2012).

The hypothesis tested in this study stated strength of perceived connectedness and emotional functioning will vary given pre-COVID place of residence for college students. Campus connectedness, pre-COVID place of residence, gender, class rank, and previous trauma exposure were predictor variables in a moderated regression analysis with emotional functioning as the outcome variable. Campus connectedness and place of residence were entered outside of the interaction term as independent variables to examine a main effect. An additional variable was created to examine the interaction between place of residence and campus connectedness. To inform the research question,

the interaction term was added to the model as a predictor to understand if place of residence is a moderator for campus connectedness and emotional functioning.

RESULTS

Preliminary analyses

Descriptive statistics for variables of interest were examined. Before the COVID-19 outbreak, 40% of students lived on campus, 60% of students off campus, and 30% witnessed or experienced an upsetting life event. On average, students reported moderate connectedness to peers, community, and professors (M = -.68, SD = 3.11, Max = 6, Min = -6), in addition to lower emotional distress scores (M = 14.54, SD = 5.01, Max = 32 , Min = 8).

To further understand variables used in the model, Pearson correlations were run between pre-COVID place of residence, gender, class rank, trauma history, campus connectedness, and emotional functioning. Point-Biseral Pearson correlations indicated some relationship between variables of interest. There was a significantly small association between pre-COVID place of residence and class rank, $r(287) = .137$, $p < .05$. The relation between previous trauma history and emotional functioning scores revealed a significantly moderate association, which indicated that students who witnessed or experienced an upsetting event before COVID reported higher emotional distress during COVID-19, $r(287) = .346$ $p < .001$. Lastly, a Pearson correlation revealed a significant, negative relationship between campus connectedness and emotional functioning scores, such that as students reported more connectedness, they reported less emotional distress, $r(287) = -.172$, $p < .001$.

Test of pre-COVID residence as a moderator for connectedness and emotional functioning

Analysis of moderation was conducted with Hayes' (2012) PROCESS Macro to examine the predictor (campus connectedness), moderator (place of residence), and outcome variable (emotional functioning). The *a priori* hypothesis stated students who lived on campus pre-COVID will report higher perceived campus connectedness and lower emotional distress scores. Gender, class rank, and previous trauma exposure were entered as covariates.

The overall model was significant and revealed 19% of the variance in emotional distress scores were accounted for by these predictors, F (6, 274) = 11.37, $p < .001$, $R^2 = .19$. Both gender and previous trauma exposure significantly accounted for variation in emotional distress scores (p's < .001). Campus connectedness scores ($p = .18$), pre-COVID place of residence ($p = .11$), and class rank did not ($p = .29$) (Table 1). The interaction term between pre-COVID place of residence and campus connectedness did not moderate the relation of campus connectedness and emotional functioning, as evidenced by an increase in total variation of .0004%, which was not statistically significant, $F(1, 274) = .13$, $p = .71$.

Indicators of emotional functioning: exploratory analyses

Exploratory analyses were conducted to further understand covariates used in the main analysis. An independent t-test was used with gender as the independent variable (male, female) and emotional functioning scores as the dependent variable to examine gendered differences. Results indicated a significant difference among the two gender groups, such

that females reported worse emotional distress (M = 15.63, SD = 5.06) compared to males (M = 13.37, SD = 4.69), $t(279) = -3.86$, $p < .001$, $d = -.46$. (Figure 1).

Next, an exploratory independent t-test was run to examine differences in emotional functioning scores between participants who witnessed or experienced an upsetting life event before the COVID-19 outbreak. The analysis revealed participants who endorsed an upsetting life event before the viral outbreak reported significantly worse emotional distress two months after the outbreak (M = 17.15, SD = 5.51) compared to participants who did not endorse history of an upsetting life event (M = 13.39, SD = 4.31), $t(279) = -6.16$, $p < .001$, $d = -.79$ (Figure 2).

DISCUSSION

Young adults, specifically college students, are among the most vulnerable for developing a mental health disorder (Leahy et. al., 2010; Reavley, McCann, & Jorm, 2012). COVID-19 has increased stress, anxiety, and depressive symptoms for this demographic, such that lockdown measures like university closures and transition to online or hybrid learning has impeded general functioning (Li, Wang, Xue, Zhao, & Zhu, 2020; Von Keyserlingk, Yamaguchi□Pedroza, Arum, & Eccles, 2021). The primary purpose of this study was to identify predictors of emotional distress for college students who resided on the east coast of the United States during COVID-19. Data was collected two months following the initial outbreak.

This study aimed to explore pre-COVID place of residence, perceived connectedness, and emotional functioning during the pandemic. We hypothesized the relation between connectedness and emotional functioning would vary as a function of pre-COVID place of residence. Recent literature about COVID-19 suggested students who lived on campus before the outbreak reported significant psychological impairments directly related to the unexpected housing relocation (Conrad et. al., 2021). Past work stated college students who lived on campus reported more social support and less mental health difficulties compared to students who lived off campus (Beiter et. al., 2015), perhaps due to accessibility of campus resources such as mental health counseling. In addition, prior work found more healthy behavioral and emotional functioning among students who lived on campus (Simons-Mortin, 2016; Yorgason, Linville, & Zitzman, 2008). The results of the current study revealed pre-COVID place of residence and current perceived connectedness did not predict emotional distress among college

students. However, gender and an endorsement of previous trauma exposure appeared to impact emotional functioning two months after university closures occurred, consistent with previous research (Liu et. al., 2020; Lee, Catigan, & Rhew, 2020).

Significant indicators of emotional distress

Gender and previous trauma exposure may be related to current emotional distress among college students. Females typically report significantly more psychological distress and symptomatology compared to males when disaster is experienced (Davis et. al., 2010; Liu et. al., 2020; Xiong et. al., 2020). In this sample, college women reported more emotional distress compared to college men during the pandemic. Previous research elucidated influences that contribute to this outcome. College females are often exposed to more traumatic events between age 18 - 24, which may contribute to the increased stress that is often reported (David & Foa, 2006). Notably, female students continue to report increased psychological symptoms during the COVID-19 pandemic (Hunt et. al., 2021; Debowska, Horeczy, Boduszek, & Dolinski, 2020).

This sample also revealed students who witnessed or experienced an upsetting life event before the COVID-19 outbreak reported worse emotional functioning two months after university closures. This association is congruent with past literature regarding college student trauma exposure and mental health outcomes (Artime, Buchholz, & Jakupcak, 2019), and should continue to be examined as the viral outbreak progresses. Evidently, the COVID-19 outbreak has exacerbated experiences of previous trauma, and can be considered a traumatic experience in general, depending on exposure to the deadly virus (Boyraz & Legros, 2020; Horesh & Brown, 2020).

Colleges and universities across the nation should continue to consider previous experiences of trauma as students return to live on campus, take in person classes (Chi et. al., 2020), and implement trauma-informed care when possible. Since the COVID-19 outbreak, college students have reported increased stress and anxiety. In fact, a meta-analysis of COVID-19 literature revealed 30% of college students reported post-traumatic stress symptoms following the initial COVID outbreak (Batra, Sharma, Batra, Singh, & Schvaneveldt, 2021). For this reason, Substance Abuse and Mental Health Services (SAMHSA) recommended a pandemic-specific trauma-informed approach to address student mental health needs on university campuses (Palmer, 2020; Harper & Neubauer, 2020). The use of a trauma-informed approach may lessen emotional distress for students who have experienced previous trauma before the COVID-19 outbreak.

Limitations

The model tested in this study was limited by its participant sample and measurement. First, an even distribution of participants may have revealed more information about the impact pre-COVID place of residence has on current emotional distress. In particular, 60% of students who participated in the study lived off campus before the COVID-19 outbreak. This might suggest more than half of participants did not experience housing disruption, lose a sense of belonging due to the university closure, or report more connectedness before COVID-19, in general. Distribution of participants between class rank is considered a limitation given 60% of respondents were underclassmen. Generally, past work suggests underclassmen might report less connectedness to the campus community (Lee et. al., 2002).

Second, the study was limited by the evaluating measure for campus connectedness. Three items were used to assess campus connectedness, which may not capture totaled perceived social support and belongingness (Bales et. al., 2015). An additional variable to measure the extent of extracurricular activity the student is involved should be considered in the future. More variables to measure connectedness may identify differences in functioning between students who resided on campus compared to students who resided off campus (Whitlock, Wyman, & Barreira, 2012).

Conclusion

The current study was intended to examine the relations among perceived campus connectedness and pre-COVID student residence to predict emotional functioning two months after the viral outbreak. Future work should seek to evaluate post-traumatic stressors, and social support associated with college student residence as the global pandemic evolves. Overall, these findings demonstrated female students and students who have previously experienced a traumatic life event have reported more emotional dysfunction. This study may contribute to the literature about the importance of a trauma-informed approach to care for college communities, as students continue to manage emotions related to the ongoing pandemic.

APPENDICES

Table 1.
Results of Regression Analysis for Pre-COVID Place of Residence moderating Campus Connectedness and Emotional Functioning Relation

	b	*SE*	*t*
Model summary: [R = .45, R^2 = .20, F = 11.37**]			
Gender	1.73	.55	3.13**
Previous trauma	3.64	.59	6.11**
Class rank	-.59	.56	-1.04
Campus connectedness	-.39	.29	-1.34
Pre COVID place of residence	.89	.56	1.57
Interaction effect: [R^2 = .0004, F = .13]			
Pre COVID place of residence x Campus connectedness	.06	.17	.35

Note. **p <.001.

Figure 1.

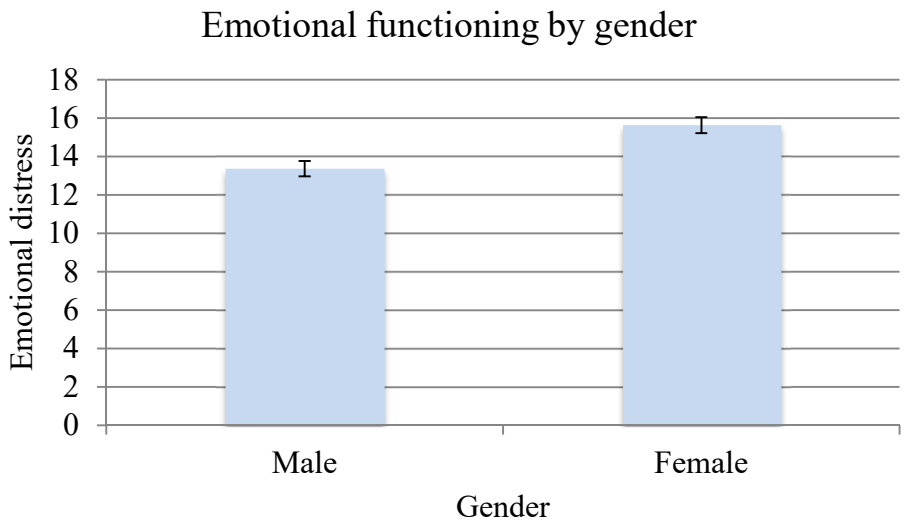
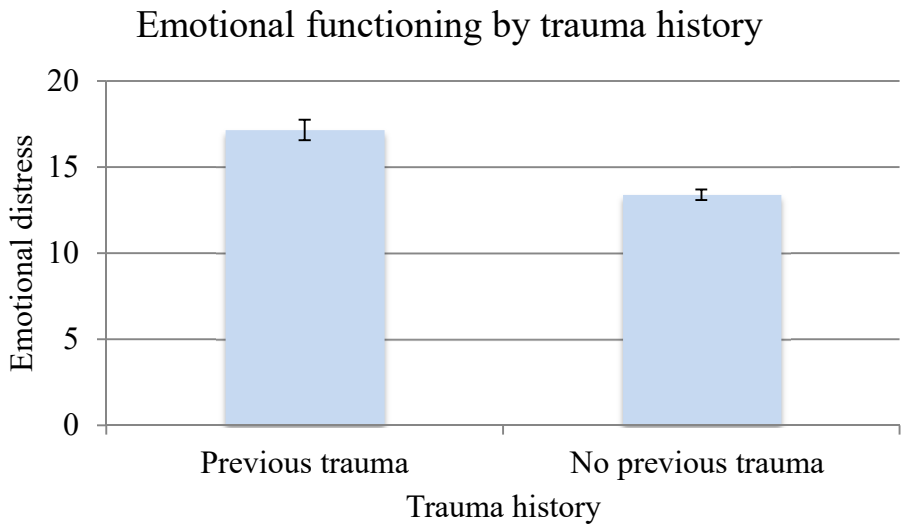


Figure 2.



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