



# COVID-19 and Social Capital Loss: The Results of a Campus Outbreak

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## Abstract

This study examines the effects of a COVID-19 outbreak on levels of social capital on a college campus, drawing on survey data collected from students at two colleges—one that experienced an outbreak and one that did not. Social capital is examined as an individual level resource and as a campus level normative tool used to fight collective action problems. We test the hypothesis that the outbreak, as a “shock” to the campus, diminished social capital. We also test hypotheses on gender, race, and ethnicity and social capital, informed by prior research. Our findings suggest that the outbreak did reduce social capital at both the individual and campus levels, though individual social capital had a mitigating effect that increased campus social capital. We find also that gender was significantly linked to campus social capital, while race was predictive of individual level social capital.

**Keywords** Covid-19 · social capital · community shock · college campus

## 1 Introduction

The COVID-19 pandemic poses a global collective action problem, and the fight against it is playing out differentially across communities. The onset of epidemic disease has frequently been a turning point in history, weakening some societies while creating opportunities for others (Oldstone, 2010). As early as the Black Death, public health authorities have been arguing for quarantine measures that created conflict with local religious figures insistent on gathering for worship (Cipolla, 1979). Similarly, during the Spanish Flu, there were conflicts over mask-wearing at World War I victory parades (Barry, 2005). Though the role of social factors in controlling the spread of diseases such as cancer is reasonably well understood, important questions remain (Anand et al., 2008). Resiliency in the face of

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disease spread hinges on the successful resolution of collective action problems (McNeill, 1998), and the ability to respond collectively depends on achieving high levels of social capital (Brehm & Rahn, 1997). However, what happens when the collective action problem itself—the pandemic—undermines social capital and the ability to respond effectively? In this study, we examine how a COVID-19 outbreak on a college campus led to diminished levels of social capital, thus weakening trust in peers. Further, we consider how the critical effects of gender and race exacerbate inequalities of social capital and collective action.

## 2 Literature Review

Fulkerson and Thompson (2008) identify a critical difference in how social capital is defined and used in social science research. Perhaps most common is the “normative” definition, in which social capital refers to collective networks and norms of trust and reciprocity (Coleman, 1988, 1990; Putnam et al., 1993; Putnam, 2000). Brehm and Rahn (1997) offer a slight variation that defines it as the cooperative relationships that can resolve collective action problems. Building on these definitions, we view this type of social capital as the normative assets of collectivities that can enable them to overcome collective action problems. Engaging in protective behaviors during a pandemic indicates that community members are contributing to the collective good in the form of public health. Alternatively, the “resource” social capital definition defines it as a personal or individual asset that emerges from supportive and rewarding social relationships (Granovetter, 1973; Fernandez, Castilla, and Moore, 2000; Lin, 2001; Portes, 1998). Knowing someone who can provide valuable information or access to employment are forms of this second kind of social capital. For our purposes, the ability to receive support to help manage distress during the pandemic lockdown indicates this type of social capital (Fulkerson et al., 2022). Providing further nuance, Nahapiet and Ghoshal (1998) distinguish between structural, cognitive, and relational dimensions of social capital. In their framework, structural refers to the network, while relational refers to norms, values, and beliefs, and cognitive corresponds to subjective understandings of the structural and relational (Claridge, 2018). While these dimensions may be dissected analytically, they are highly intertwined (Uphoff and Wijayaratra, 2000), and may be found at the collective and individual levels. Brehm and Rahn (1997) suggest that individual (resource-focused) and collective (normative-focused) levels of social capital are linked—with individual social capital acting as a precursor to collective social capital. Jicha et al. (2011) find support for the hypothesis that individual social capital was predictive of participation in collective action—and thus normative social capital—in the wake of a natural disaster.

### 2.1 Social Capital and COVID-19

Research focusing on the relationship between social capital and the COVID-19 pandemic is emerging and often adopts the normative conception of social capital. For example, a study by Wu (2021) found that social capital led to a more effective response to the pandemic, defined as collective action and norms of trust and reciprocity. Bian et al. (2020) suggest that the connectedness of Chinese citizens through the WeChat app helped create “virus-combat social capital” that was especially effective at creating a public response. Lau

(2020) finds that prior experience combatting the SARS virus gave Hong Kong higher levels of social capital that could be activated to mobilize during the COVID-19 pandemic. The underlying theme of these studies is that normative social capital enabled a better response to the pandemic, providing resiliency through a collective commitment to protective practices such as masking and social distancing.

A related body of research examines the mitigating qualities of social capital on the consequences of the COVID-19 pandemic. These studies tend to adopt an individual resource conception. Borgonovi and Andrieu (2020) found that higher levels of social capital at the county-level prompted a quicker response time when the nation (Italy) went into lockdown, thereby preventing outcomes such as death or severe illness requiring a ventilator. Caballero-Dominguez (2021) examined the relationship between social capital and psychological distress in Colombia under the COVID-19 lockdown, finding evidence that social capital could help mitigate distress levels. Finally, Ohta and Yata (2021) found that social connectedness was necessary for the well-being of the rural elderly in Japan. In this case, the authors suggest social capital was an outgrowth of the tradition of “osekkai,” or the willingness to volunteer help and provide social support to the elderly. However, finding mixed or even contrary results, Elgar et al.’s (2020) cross-national analysis of the pandemic found that countries with higher levels of social trust and belonging were experiencing *higher* death rates, though nations with higher confidence in state institutions and civic engagement experienced *lower* death rates. Lindström (2020) cautions that these unexpected results may stem from a methodological flaw—the World Values Survey data are collected at different times for different countries on a rolling basis. Perhaps more socially isolated individuals are less likely to interact and thus become infected. Additional research is needed to resolve these questions.

## 2.2 Social Capital, Race, and Gender on College Campuses

Though not explicitly focused on COVID-19, some research on the effects of social capital, race, and gender on college campuses has been conducted. Schwartz et al. (2018) found that having more individual social capital, measured as on-campus connections, was associated with improved relationships with instructors, higher GPAs, and improved overall attitudes and behaviors of first-year college students. Weitzman and Kawachi (2000) found that higher levels of social capital, measured as volunteer time, were associated with a 26% lower risk for binge drinking. Buettner & Debies-Carl (2012) examined the role of alcohol parties on student social capital, finding that they were more of a supplement to existing social capital than a source of new social capital for students—they could strengthen existing social ties but did not often create new connections.

Other studies explore social capital on campus by gender and race, usually as an individual resource. Clopton (2012) found that social capital varied for student-athletes, with females and white students reporting better social outcomes than their male and non-white peers. Hypolite (2020) found that campus Black Cultural Centers (BCCs) were effective at fostering social capital for black students, underscoring their value to campus diversity efforts. Park and Bowman (2015) examine the role of religious organizations in promoting campus bridging social capital as it relates to cross racial interaction (CRI), finding a positive effect. Harper’s (2008) study suggests that social networks could provide a powerful tool for high-achieving African American male undergraduate students. However, Twitty

(2013) found that the post-graduation wage gap between white and black students was only reduced when students were networked with highly influential career centers at prestigious universities, which is a function of high elite socioeconomic status. In a study of an elite selective private college, Martin (2013) found that individual-level social capital reproduced class advantages, as increased connections led to better academic performance and post-graduation outcomes.

Going beyond studies of college campus, research on race, gender, and social capital has found that individuals who are white and male are more likely to experience the rewards of individual social capital. For instance, McDonald and Day (2010) find that unsolicited job leads are more likely to benefit white males than non-white minorities and women. This is further supported by Song & Chen (2014), who found that unsolicited job leads could also lead to psychological distress for those with less socioeconomic status (SES). Schafer and Vargas (2016) find that while inequalities in social support reflect broader patterns of social inequality, higher SES can preserve social capital over time, thus magnifying gender and racial disparities as they interact with SES. Finally, McDonald (2011) found that work experience created more social capital for men than women, thus explaining part of the gender wage gap.

### 2.3 Disaster, Shocks, and Social Capital

Much of the research reviewed to this point conceives of social capital as an independent cause or a mitigating factor with various outcomes. However, less research posits social capital as a dependent outcome. One way to approach social capital as a consequence comes from the “community shock” framework (Besser, Recker, & Agnitsch, 2008). A community shock may be considered a “sudden event that significantly challenges the status quo of a community” (Besser, Recker, & Agnitsch, 2008, p. 580). This would be the case following a hurricane but may also be “slow-moving” such as a gradual loss of employment in a community over several years. The COVID-19 lockdown was a sudden event that changed the status quo for most communities, including campus communities.

The effect of community shocks on social capital spurns much debate in the literature. One school of thought suggests a “consensus crisis” will ensue (Couch and Kroll-Smith, 1994; Drabek, 1999), whereby people are united in solidarity following a crisis. Alternatively, the “corrosive community” hypothesis (Freudenburg and Jones, 1991) suggests that crisis will erode community social capital, leading people to become distrustful and unable to solve collective action problems. Negative shocks may lead to the breakdown of social norm compliance, resulting in deviations such as stealing and cheating (Bogliacino, et al., 2021), and may diminish cognitive functioning while promoting risky behaviors, fear, and negative reciprocity in the form of a desire to punish others (Bogliacino, Codagnon, Montealegre, et al., 2021; Codagnone, Bogliacino, & Gómez, 2021). Recent evidence has emerged for the idea that negative shocks diminish collective levels of trust only when shock leads to greater inequality—when inequality is absent, pro-social behaviors may follow, leading to positive outcomes (Bejarano, Gillet, and Rodriguez-Lara, 2018, 2021). Identifying and understanding the effects of inequality may help resolve the debate in the community shock literature. Besser, Recker & Agnitsch (2008) and Recker (2013) observe that not all community shocks are negative. They find that diminished social capital levels could be remedied by introducing positive shocks. These positive shocks could be large and

sudden, or small and gradual, building over time. This observation offer hope for developing policy solutions.

### 3 Research Questions and Hypotheses

Existing studies suggest that having robust norms of trust and reciprocity will allow collectivities, such as college campuses, to respond with greater agility and prevent disease spread through protective behaviors. However, campus social capital has not yet been considered in light of a COVID-19 outbreak. Nor has the literature consistently evoked the distinction between collective normative and individual resource social capital, leaving some important gaps in understanding. We wish to examine the mitigating effect of individual on campus levels of social capital. In approaching this question, we evaluate the two competing hypotheses from the community shock literature reviewed above: consensus crisis vs. corrosive community. The former would predict higher social capital as a result of the outbreak, while the latter would predict lower levels of social capital. Further, we consider the role of inequality in shaping the response, based on the effects of race and gender.

Though social capital research on college and university campuses has not focused on COVID-19 directly, related research on drinking behaviors suggests that individual social capital can help protect students from risks to their health and safety. Most of this literature has focused on how inequalities translate into unequal levels of individual-level resource social capital. This research has demonstrated that social capital has led to beneficial effects for students who are predominantly white and female (based on the study of athletics) and from a higher social class. These benefits include better grades, better relations with professors, and greater success post-graduation. The broader literature (looking beyond the context of college) would suggest that males are more likely to benefit than females. Researchers are also examining whether strategies for improving diversity, such as creating Black Cultural Centers or promoting campus religious participation, can improve social capital. Based on the studies we reviewed, we expect that individual social capital levels will be higher for white and female students in the context of a college campus.

### 4 Methods and Measurement

We conducted survey research on the impacts of COVID-19 in the fall of 2020 through the spring of 2021 at two colleges—one small private college and one medium-sized public college. This survey was part of a larger research project conducted by the ICIC research team (Intermountain COVID-19 Impact Consortium). Other projects include surveys of employees on campus, p-12 teachers, childcare workers, municipal government workers, and small businesses. Over the study period, we collected six different waves of cross-sectional survey data. The analysis presented here uses the fourth wave, administered in late January 2021, as it contained the most relevant measures for the research questions we wish to explore. This wave included a combined sample of 1,710 student respondents, of which 478 were at the smaller college, while 1,232 were at the larger college. The response rate was 19.2%. Our descriptive statistics and correlation matrix are provided for our analysis variables in Table 1 for the combined samples.

**Table 1** Descriptive Statics and Correlations

|  | Statistics               | V1        | V2       | V3      | V4       | V5       | V6       | V7  |
|--|--------------------------|-----------|----------|---------|----------|----------|----------|-----|
| V1 Outbreak (Experienced)                                | 72.05%                   | ---       |          |         |          |          |          |     |
| V2 Gender (Male)   | 28.55%                   | -0.086**  | ---      |         |          |          |          |     |
| V3 Race (White)  | 79.37%                   | 0.010     | -0.066*  | ---     |          |          |          |     |
| V4 Individual SC: Relationships are Supportive/Rewarding | $\bar{x}$ =5.67, SD=1.30 | -.048†    | -0.020   | 0.087** | ---      |          |          |     |
| V5 Campus SC1: Peers' Skills/Abilities                   | $\bar{x}$ =4.55, SD=1.78 | -0.241*** | 0.140*** | -0.033  | 0.187*** | ---      |          |     |
| V6 Campus SC2: Peers are Willing                         | $\bar{x}$ =4.85, SD=0.05 | -0.171*** | 0.110*** | -0.031  | 0.208*** | 0.750*** | ---      |     |
| V7 Campus SC3: Peers' Time/Effort                        | $\bar{x}$ =4.51, SD=0.05 | -0.168*** | 0.074**  | -.049†  | 0.188*** | 0.665*** | 0.757*** | --- |

Alpha= .10, \*.05, \*\*.01, \*\*\*0.001

#### 4.1 Outbreak

The larger college began the year with a severe outbreak on campus, while the smaller college did not experience an outbreak through the academic year. This allows us to assess outbreak's impact through a quasi-experimental design comparing the two campuses. We created an outbreak binary dummy variable. Within the sample, 72.05% experienced a campus outbreak of COVID-19, while the remainder did not.

#### 4.2 Individual Social Capital

We conceptualize individual social capital as individuals who possess social relationships or ties that are valuable, supportive, and rewarding. Our measure approximates this conception and is based on a survey question that asks for agreement with the statement, "My social relationships are supportive and rewarding." Response options ranged from 1 to 7, with 7 indicating a high level of agreement with the statement. The average student reported a relatively high level of agreement with this statement (5.67/7).

#### 4.3 Campus Social Capital

We conceptualize campus (collective) social capital as high levels of trust and reciprocity that lead to enhanced collective action. Our measures of collective campus trust include three different variables that relate to the extent to which respondents trust their peers to engage in protective behaviors (wearing masks and social distancing). Each item asks for agreement with a statement, in which the answers range from 1 to 7, with 7 indicating a high level of confidence in peers. The first item asks for agreement with the statement, "I have confidence in the skills and abilities of my peers at the college to develop and sustain successful COVID-19 protective behaviors." The second item asks for agreement with the statement, "My peers at the college are willing to engage in the necessary efforts to develop

and sustain successful COVID-19 protective behaviors.” The third item states, “I believe that my peers intend to prioritize their time and effort on COVID-19 preventive behaviors.” The averages (4.55, 4.85, and 4.51) indicate similar, slightly higher than neutral levels of agreement.

#### 4.4 Social Inequalities

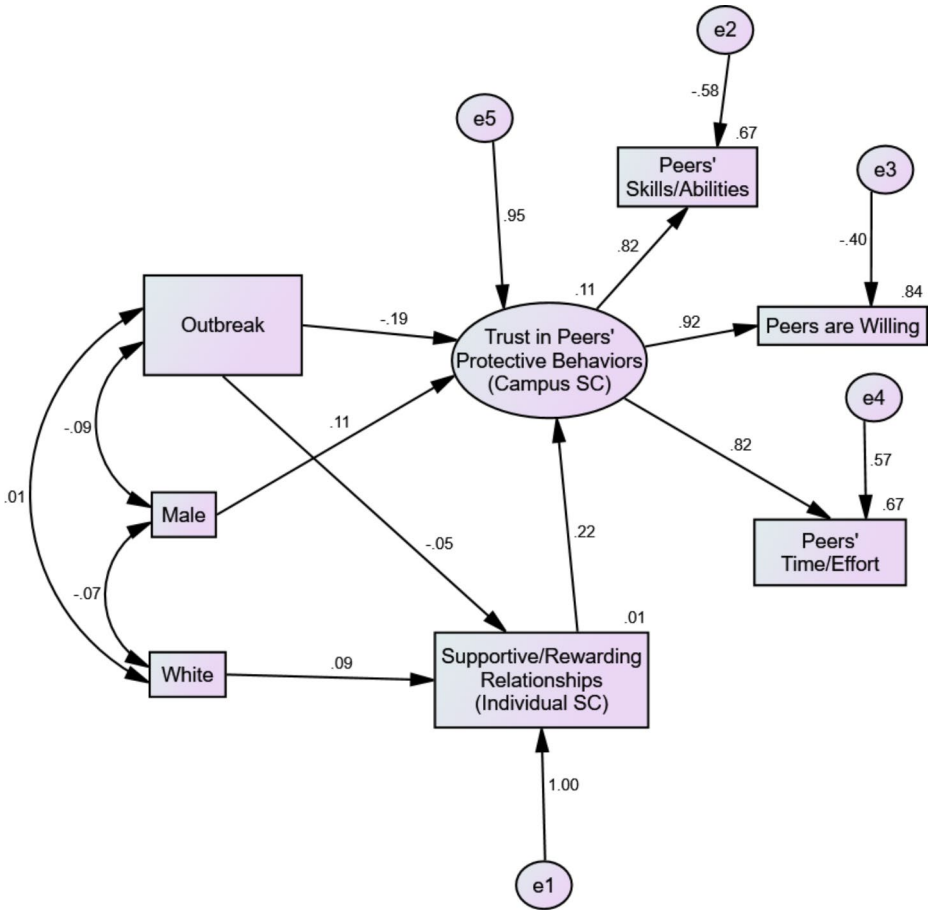
In order to examine research questions about social inequalities, we used questions that measured student gender and race. Due to sample size limitations, we decided to recode the original responses into binary variables for students as White/Non-White and Male/Non-Male. The sample includes 79.37% white students and 28.55% male students.

### 5 Analysis and Findings

Our analysis relied on IBM SPSS Statistics to organize and manage the analysis variables and complete the analysis. We then turned to SEM analysis within IBM AMOS to test our hypotheses. This was necessary to examine the mitigating role of individual social capital on campus social capital, which could not be tested with an additive model in OLS regression. As the correlation matrix in Table 1 shows, the outbreak variable had a small but significant negative relationship with gender (-0.086), meaning that the school going through the outbreak had fewer male students. There was no difference between the schools in terms of racial composition. The outbreak was correlated with a lower level of individual social capital (-0.048) and a larger negative and significant relationship with the three indicators of campus social capital (-0.241, -0.171, and -0.168, respectively). Therefore, on a bivariate level, it appears the outbreak had a negative relationship with both individual and campus levels of social capital. Turning to questions regarding race and gender, apart from the relationships to the outbreak noted above, we find that gender (being male) was related to slightly lower levels of individual social capital (-0.048) and moderately higher levels of trust in peers or campus social capital (0.140, 0.110, and 0.074, respectively). White students reported slightly higher levels of individual social capital (0.087) and weak to no relationship to trust in peers, with only one indicator—peers’ time/effort in protective behaviors—marginally significant and negative (-0.049). Next, we find that individual social capital has a moderate positive relationship with each indicator of campus social capital (0.187, 0.208, and 0.188, respectively). The three indicators of campus social capital/peer trust correlate highly with an alpha (average correlation) of 0.724. This high intercorrelation suggests they are measuring a latent construct, which we label “Trust in Peers” in the next stage of our analysis.

#### 5.1 SEM Analysis

Next, we tested our research questions and hypotheses using Structural Equation Modeling (SEM). This allowed us to examine both direct and indirect effects, which was essential for testing the moderating effects of individual social capital on campus social capital. Figure 1 presents the results of the analysis, showing standardized coefficients. Initially, we created a saturated model in which all possible paths were included between the variables. We then



**Fig. 1** Path Model with Standardized Coefficients. Model Fit:  $\chi^2=40.152$ ,  $df=10$ , ratio=4.015; NFI=0.985, RFI=0.958, IFI=0.989, TLI=0.968, CFI=0.989, RMSEA=0.042

trimmed from the model the non-significant paths. The resulting model, therefore, only includes statistically significant paths. Overall, the model fit statistics are deemed acceptable, as the chi-square to degrees of freedom ratio is below 5 (4.015), the various fit indices each approach the limit of 1, and the RMSEA is below 0.08 (0.042). The squared multiple correlations in the model suggest that the independent variables account for about 11% of the variation in explaining trust in peers while the respective indicators show explained variation as 67% (peers' skills/abilities), 84% (peers are willing), and 67% (peers' time/effort).

The standardized effects shown in the model paths inform us of the strength and direction of the relationships between the variables. SEM models allow us to examine latent variables, which we have utilized by creating the “Trust in Peers” construct. The three indicators of this construct—peers' skills/abilities, peers are willing, and peers' time/effort—have large path coefficients, ranging from 0.82 to 0.92. These are higher than the intercorrelations between the variables noted earlier.



**Table 2** Total Effects (Standardized)

|   | Race<br>(White) | Outbreak<br>(Experienced) | Gender<br>(Male) | Supportive/Reward-<br>ing Relationship<br>(Individual SC) | Trust<br>Peers |
|---|-----------------|---------------------------|------------------|---|----------------|
| Supportive/Rewarding Relationship (Individual SC) | 0.087           | -0.050                    | 0.000            | 0.000   | 0.000          |
| Trust Peers (Latent Variable)                     | 0.019           | -0.205                    | 0.111            | 0.220   | 0.000          |
| Peers' Time/Effort                                | 0.016           | -0.168                    | 0.091            | 0.180   | 0.821          |
| Peers are Willing                                 | 0.017           | -0.188                    | 0.102            | 0.202   | 0.918          |
| Peers Skills/Abilities                            | 0.016           | -0.168                    | 0.091            | 0.180   | 0.817          |

With respect to the effect of the outbreak, the model shows results similar to the bivariate correlations—a modest negative relationship with individual social capital and a modest (-0.19) negative relationship with trust in peers. Also consistent with the bivariate correlation analysis is the positive effect of individual social capital on the latent variable, “Trust in Peers.” Table 2 reports the total effects, which take both direct and indirect effects into account. The table shows that the total effect of the outbreak on trust in peers (campus social capital) is -0.205. The total effect accounts for the moderating effect of the outbreak on individual social capital. Since the outbreak led to a slight reduction in individual social capital, its positive effects on trust in peers were reduced, resulting in a larger net negative effect of the outbreak on campus social capital (trust in peers).

Next, we turn to our questions about social inequalities. We find that in the model, the direct effect of gender (being male) led to a higher level of trust in peers. Despite the significant bivariate correlation, the effect of gender on individual social capital, net of the other variables in the model, was not significant. It was therefore trimmed out of the model. Regarding the effects of race, being white led to a higher reported level of individual social capital, as indicated by having more supportive and rewarding relationships. Consistent with the bivariate correlations, net of the other variables in the model, race did not have a significant direct relationship with trust in peers (campus social capital). However, there is an indirect relationship since being white leads to greater levels of individual social capital, which in turn leads to higher levels of trust in peers (campus social capital). The total effect of being white on trust in peers remains modest (0.019), as shown in Table 2.

## 6 Discussion and Conclusions

The analysis above provides us with preliminary conclusions for our research questions and hypotheses. First, regarding the outbreak, it appears that the “corrosive community” hypothesis was supported over the “crisis consensus” hypothesis. Rather than the outbreak bringing the campus together, the effect was a damaging blow to campus social capital, resulting in degraded trust in peers to engage in collective protective behaviors. This was exacerbated by a slight reduction in individual social capital, owing to its mitigating effects. Students with more supportive and rewarding relationships were more likely to trust their peers, but since the outbreak damaged these supportive relationships, there was less mitigation of campus social capital.

In terms of our analysis of social inequalities, we tested the effects of race and gender on social capital. While we expected higher levels of individual social capital for white and

female students, our model provided partial support. Gender had no direct effect on individual social capital. It did, however, impact campus social capital, though in the direction of favoring males. There was a direct effect between race and individual social capital with white students experiencing higher levels, as anticipated. Because of the mitigating quality of individual on campus social capital, being white led to a minor indirect boost in trust in peers. Prior studies have only modeled the direct effects of race and gender and have not distinguished individual from campus levels. Hence, our findings provide novel insights into these dynamics of social inequality and social capital.

## 6.1 Limitations, Implications, and Future Research

While this analysis provides valuable insights and contributions to our understanding of campus social capital dynamics amid the COVID-19 pandemic, we caution against overgeneralization. The colleges in our analysis were predominantly female, for instance, and may not be representative of colleges with different gender proportions. The racial composition of the respondents was close to national averages but slightly overrepresents white students. Next, the two colleges in the study are different in size and this is reflected in the size of their respective samples. This may have an effect on statistical power and the ability to make inferences. Finally, the study's cross-sectional design limits our ability to fully establish causality, and we caution against interpreting correlations and path coefficients as causal relationships without further longitudinal testing.

We hope this study will encourage future investigations of college campuses from diverse communities, deepening our understanding of campus social capital. It would be worthwhile to understand the differences between the effects of a pandemic disaster and, for instance, a natural disaster such as a hurricane or flood. In addition, gender, race, and other categorical differences in how individuals experience and respond to disasters might be implicated in individual and community-level social capital. Future research should continue to investigate how social inequalities shape access to social capital.

From a policy perspective, our study implies that college campuses can prepare for threats such as pandemics by investing in students' personal relationships. Discrepancies in social capital by race and gender are concerning, and efforts to close gaps should be pursued, such as those identified earlier in the literature review. Importantly, solving collective action problems requires trust and cooperation from community members on campus. Colleges and universities should explore strategies for enhancing the value and supportiveness of personal relationships for the student body. It benefits the individual, helping them to limit distress, while also bolstering the campus community's resilience against external threats, including the COVID-19 pandemic.

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