

# COVID-19-related anxiety: How do coping and optimism relate to substance use in African-American young adults?

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## Funding information

Florida A&M University Office of Undergraduate Research, World Class Scholars Research Program, Grant/Award Number: Student Research Award

## Abstract

The COVID-19 pandemic has greatly affected college students nationwide. Recent research suggests that the COVID-19 pandemic has disproportionately impacted African-American young adults. The infection case rates, hospitalizations, and death rates in African-American populations are 2–5 times higher than among White populations. The intergenerational trauma and systemic racism that African-Americans have faced in past and present times have fomented conditions that lead to vulnerability within this historically resilient community. These stresses and losses increase the risks of anxiety and substance use. This study examined the relationship between COVID-19-related anxiety and substance use, and how adaptive coping and optimism influence this relationship in African-Americans young adults. Results reveal that COVID-related anxiety predicts alcohol and drug use. Optimism and adaptive coping are related to lower pandemic-related anxiety, alcohol, and drug use among African-American young adults.

## KEYWORDS

African-Americans, anxiety, COVID-19 pandemic, mental health, optimism, substance use/abuse, young adults

## 1 | INTRODUCTION

The COVID-19 pandemic has brought unprecedented stress and mental health challenges for college students worldwide (Bricker, 2020; Fruehwirth et al., 2021; Li et al., 2021; Prowse et al., 2021; Son et al., 2020; Statistics Canada, 2020). Before the pandemic, students were already experiencing substantial mental health concerns which placed both their health and academic success in jeopardy. College students now face increased housing and food insecurity, financial hardships, a lack of social connectedness and sense of belonging, uncertainty about the future, and access issues that impede their academic performance and well-being (Aucejo et al., 2020). This is reflected in reports that 13% of college students have delayed graduation, 40% have lost a job, internship, or job offer, and 29% expect to earn less at age 35 (Aucejo et al., 2020). Clearly, COVID-19 has impacted college students negatively across many dimensions.

COVID-19 has exacerbated inequities for students of historically marginalized ethnic groups and low-income students (Lederer et al., 2021). Lower-income students are 55% more likely than their higher-income peers to have delayed graduation due to COVID-19 (Aucejo et al., 2020) and currently, African-American undergraduate students have the most weekly working hours in comparison with other ethnic groups (U.S. Department of Commerce, Census Bureau, Current Population Survey, 2020). Specifically, 18.5% of African-American full-time undergraduate students work more than 35 h per week (Hispanic, 13.6%; White, 9.7%; and Asian-Americans, 4.4%), and 52.6% of part-time African-American undergraduate students work 35 h or more per week (White, 48.6%; Hispanic, 46.4%; Asian-Americans, 42.0%). These students are experiencing significant work-related, academic, financial, and socioemotional challenges related to COVID-19. The influences of financial strain, especially that of financial debt and unemployment, contribute even more heavily to the mental health of individuals experiencing major traumatic events (Elbogen et al., 2020; Fetter & Thompson, 2020).

Additionally, the recent officer-involved killings of George Floyd and several other unarmed African-Americans have reignited America's racism crisis, exposing African-Americans to new racial trauma and exacerbating mental health disparities. Psychosocial and environmental stress has been implicated in the etiology of health problems in African-Americans (Cogburn, 2019; Gee & Ford, 2011). Exposure to traumatic events, structural racism, and racial discrimination have been associated with increased risk for poor physical and mental health outcomes among African-Americans, including increased anxiety sensitivity and substance misuse (Gee & Ford, 2011; Haas et al., 2019; Sosoo et al., 2020). These challenges are compounded for African-American college students, who must navigate the uncertainties of the pandemic, racial injustices, and the major upheaval of academic instruction and engagement. In addition, problematic communication, transition to online instruction, and access to resources are identified as contributors to anxiety in college students (Biber et al., 2020). Furthermore, perceived "minority status stressors" impact academic success in African-American students (Greer & Brown, 2011; Greer & Chwalisz, 2007). Marginalized groups (i.e., African-Americans, women, low-income individuals) are at increased risk for negative COVID-related outcomes (Hoyt et al., 2021; S. Liu et al., 2020).

As the pandemic continues, an increasing number of college students report feeling stressed and anxious due to COVID-19. They also report feeling sad and having a greater desire to drink and use drugs (Kleiman et al., 2020). Nevertheless, they felt more optimistic about COVID-19 when they received more support from others and utilized adaptive coping. Our study is among the first to examine the complex relationship between COVID-19-related anxiety, substance use, adaptive coping, and optimism among African-American young adults.

### 1.1 | Coping, mental health, and substance use

Emotional states have been deteriorating among young adults since the onset of the COVID-19 pandemic (Czeisler et al., 2020). Most depression, anxiety, and substance use cases often emerge during young adulthood, making college students a very vulnerable population (Esmaealzadeh et al., 2018). The percentage of adults who reported

symptoms of an anxiety disorder and did not utilize mental health services increased significantly from August 2020 to February 2021, with the largest increase among young adults 18–29 years of age (Vahratian et al., 2021). Significant increases in mental health conditions and the initiation of or increase in the use of substances have been reported by adults across the United States (U.S.). College students' frequently reported coping responses, often including cannabis and alcohol use, sleeping, and more screen time, are associated with a higher levels of stress and negative mental health outcomes (Prowse et al., 2021).

Anxiety and depression are among the most common co-occurring problems reported by individuals seeking treatment for drug addiction (Mohamed et al., 2020). Substance use disorders are associated with high levels of anxiety and depression. College students presenting with greater depressive symptomatology are more prone to using tobacco, cannabis, cocaine, other amphetamines, sedatives, and hallucinogens (Walters et al., 2018). Individuals with more severe symptoms of anxiety and depression are more likely to report an increase in their alcohol consumption (Tran et al., 2020). Further, an increased risk of alcohol and substance use is identified among individuals with severe depression and/or anxiety symptoms above what is seen among individuals with less severe symptomatology (Rudenstine et al., 2020). Individuals with anxiety and depression are more likely to report an increase in drinking during the COVID-19 pandemic than those without mental health issues (New York University, 2021).

The prevalence of COVID-19-induced anxiety (physiological complaints such as dizziness, poor sleep and appetite, and feelings of nausea and immobility) and increased or newly initiated substance use (alcohol, prescription, over the counter, and illicit drugs) during COVID-19 is more noticeable among marginalized racial and ethnic groups. Substance use increase or initiation in African–American adults since the COVID-19 pandemic is the second-highest among all ethnic groups, just next to Hispanic adults (McKnight-Eily et al., 2021). This increase in mental health conditions and substance use is exacerbated by the underutilization of treatment services (Center for Behavioral Health Statistics and Quality, 2020), persistent systemic social inequities, discrimination, and mental health stigma, which can further worsen stress and associated mental health concerns in marginalized ethnic groups (Kim & Bostwick, 2020; Millett et al., 2020). People with a history of disaster/trauma exposure are predisposed to substance use or the initiation of substance use to cope with disaster-induced stress, worries, and anxieties (Baker et al., 2004; Bravo et al., 1990; Cepeda et al., 2010; Goldmann & Galea, 2014; North et al., 2011). Individuals with greater substance use behaviors are reported to worry and experience anxiety in response to the pandemic and are more likely to have poorer health outcomes (C. Liu et al., 2020; Yao et al., 2020); creating a vicious cycle among increased mental health challenges, substance use, and poor health outcomes.

Increases in negative affect in response to disasters, including stress, worry, and anxiety, will increase motivation to use substances in an effort to lessen negative affective states (Baker et al., 2004; Bravo et al., 1990; Dorison et al., 2020). Past research from other large-scale disasters (e.g., Hurricane Katrina and World Trade Center attacks) identified increases in substance use following disaster exposure (Goldmann & Galea, 2014; North et al., 2011). Furthermore, disaster-related anxiety is associated with increases in substance use to downregulate aversive emotional states (Cepeda et al., 2010). Given the observed increases in anxiety, depression, and stress in response to the COVID-19 (Pfefferbaum & North, 2020), individuals may similarly use substances to cope with the increased negative affect in response to the current pandemic.

Individuals use different strategies to cope with stressful situations and mental health challenges. Some of the coping strategies are considered unhealthy and maladaptive (e.g., substance use). Nevertheless, people also use healthy and adaptive strategies to feel and do better in overwhelming situations like the pandemic. These strategies may include active problem solving, seeking social support, reframing a challenging situation, positive thinking, and perceived control of reactions to stressful situations (Sinclair & Wallston, 2004). Research shows positive relationships between active coping and emotional well-being and negative relationships between substance use, self-blame, and denial of mental health (Zacher & Rudolph, 2021). Other scholars posit that resilience is an important trait that can significantly affect one's psychological well-being for individuals with substance use disorders. Resilience is credited with reducing perceived stress via positive affect and self-esteem and with enhancing life satisfaction via positive affect among individuals with substance use disorders (Yang et al., 2020).

## 1.2 | Mental health and coping in males and females

Women suffer more acute stress and anxiety symptoms, while men display more resilience to stress. Women worry more frequently than men about the potential logistical impacts of the coronavirus such as loss of income, home, and the cost of associated treatment. Furthermore, more women (16%) than men (11%) felt that worry or stress related to COVID-19 would have a significant negative impact on their mental health (Frederiksen et al., 2020). Women show worse overall tolerance of the pandemic and more mental health-related complaints, but less substance use compared to men (Duncan, 2020). More women than men reported a negative pandemic-related impact on well-being due to fear of being infected, worsened mental health, a lack of a strong mental health recovery infrastructure, and heightened stress. Women also reported more and worsening symptoms of mental health conditions, such as depression, suicidal ideation, anxiety, serious psychological distress, and loneliness (Duncan, 2020).

African-American women have higher rates of anxiety and depression compared to white women, especially young women (Gur et al., 2020). Female college students, compared to males, report a more severe pandemic-related impacts on their schoolwork, social isolation, stress, and mental health challenges. Female students also tend to cope with stress by using food and sleep (Prowse et al., 2021). Many college students, regardless of gender, use substances (23.8% drinking alcohol, 17.5% using cannabis, and 9.3% vaping nicotine products) to cope with pandemic-related stress. Greater self-reliance and higher levels of emotion regulation are related to the reduced likelihood that women will screen positive for anxiety. Higher levels of emotion regulation and having fewer hostile relationships are independently related to the reduced likelihood of women screening positive for depression (Gur et al., 2020).

## 1.3 | Optimism and mental health outcomes

Optimism, the disposition that reflects generalized favorable expectancies for the future, has been related to better subjective well-being in times of difficulty or adversity (Carver et al., 2010). It may also play a role in one's adaptation to stressful situations or trauma (Molinero et al., 2018). Optimism has been known to be associated with physical and mental health behaviors (Marin et al., 2019; Wray et al., 2013). Optimists are less reactive than pessimists to stress, which may result in better physical health and longevity as lower physiological stress responses may contribute to less physical wear and tear on the body over time. Mental health benefits from optimism, which provides people with cognitive coping strategies and contextual resources (Carver et al., 2010). Therefore, optimism is an important tool for coping with trauma and has been found to mitigate some of the dramatic and long-lasting effects of trauma.

Optimism acts as a protective factor that enhances student resilience levels and helps students to reduce psychological distress caused by college life. Optimism also plays an instrumental role in sustaining physical and mental well-being and in dealing with threats that are potentially harmful to health during the pandemic (Uribe et al., 2020). More optimistic thinking coincides with the lowered occurrence of posttraumatic stress disorder (PTSD) and PTSD symptoms (Rauch et al., 2013). Individuals with higher optimism and positive anticipation are less prone to stress and are more motivated to deal with COVID-19 (Leslie-Miller et al., 2021). Students who reported low levels of optimism report higher coronavirus anxiety (Ajlouni & Almahaireh, 2020). Being optimistic, mindful, and resilient contributes to reduced depressive, anxiety, and stress symptoms. These positive attributes (optimism, mindfulness, and resilience) may serve as protective factors for the mental health symptoms associated with the current pandemic (Vos et al., 2021).

## 1.4 | Optimism and substance use

Mental health challenges and stress related to COVID-19, though extremely damaging, can be mitigated through an optimistic mindset (Marin et al., 2019). Optimism serves as a buffer against alcohol, smoking, and substance abuse,

whereas pessimism is a risk factor (Marin et al., 2019). Optimism is negatively associated with alcohol use in adolescents (Froiland et al., 2020; Wray et al., 2013). This is also the case with illicit substances, as the individuals who used illicit substances have an average total optimism score of 44% less than those who have never used illicit substances (Ansari et al., 2018).

Before the current pandemic, optimism in males was reported as lower than that of females and directly related to increased substance use in males (Hinz et al., 2017). Similarly, males reported an average optimism score that was 33% lower than females and was nearly three times as likely to use illicit substances (Ansari et al., 2018). During the pandemic, however, males are more optimistic than females; as were participants with higher levels of education (Franke & Elliott, 2021).

African-Americans have suffered inordinately from financial strain, unemployment, and exposure risk. African-American unemployment skyrocketed to nearly 17% in April of 2020, an abysmal rate this country has not seen in African-Americans since the recession in 2008 (Gould & Wilson, 2020). On top of this, African-American workers are statistically more likely to be exposed to COVID-19 in frontline jobs as well as to live in areas that are more susceptible to COVID-19 outbreaks (Gould & Wilson, 2020). Nonetheless, lower-income African-Americans were the most optimistic about their future in comparison with other ethnic groups (Graham, 2015, 2018). Despite extreme income and health disparities before and during the COVID-19 outbreak, African-Americans remain more resilient and optimistic than their White counterparts (Graham et al., 2020).

The objective of the study is to examine the patterns of coping, optimism, anxiety, and substance use among African-Americans young adults during the current pandemic. The central hypothesis of the project is that young adults with lower levels of COVID-related anxiety will have higher optimism, will engage in effective coping, and will report lower substance use.

## 2 | METHODS

### 2.1 | Participants

Participants in this study included a snowball sample of 783 young adults, ages 18–35 ( $M = 22.1$ ,  $SD = 3.0$ ); recruited from a Historically Black College/University in the southeastern region of the U.S. The sample consisted of 67% females and 32% males, 100% self-identified as African-Americans, and 95.1% college students. This study included a predominantly college-aged sample. Among them, 11.1%, 14.5%, 22.6%, 34.8%, and 17% were freshman, sophomore, junior, senior, and graduate students, respectively. Nearly 5% of participants did not provide student classification information. Among all the participants, approximately 65% reported working full-time, 16% reported part-time employment, 8% were unemployed, 8% were looking for work, and 3% did not report work status.

### 2.2 | Measures

#### 2.2.1 | Demographic questionnaire

The demographic questionnaire included general information items such as ethnicity, age, gender, and student status.

#### 2.2.2 | Brief resilience coping scale

The brief resilience coping scale (BRCS) (Sinclair & Wallston, 2004) is a short measure of resilient coping. The four items on a 5-point Likert scale evaluate the ability to cope with stress in adaptive ways.

Participants were asked to rate the extent to which each statement is descriptive of them. For example, *"Regardless of what happens to me, I believe I can control my reactions to it."* Adequate psychometrics were reported (Sinclair & Wallston, 2004). The participant's internal consistency was also sound (Cronbach's  $\alpha = 0.82$ ).

### 2.2.3 | Life orientation test-revised

The life orientation test-revised (LOT-R) (Scheier et al., 1994) is comprised of 10 items (5-point Likert scale) that measure levels of optimism and pessimism (e.g., *"If something can go wrong for me, it will."*). High scores indicate optimism and low scores reflect pessimism. Proper participant internal consistency was obtained (Cronbach's  $\alpha = 0.61$ ).

### 2.2.4 | Drug abuse screening test

The drug abuse screening test (DAST-10) (Skinner, 1982) utilized a binary (e.g., yes/no) scale for prescription, over the counter and illicit drugs; alcohol is not included. A total score was tallied based on participant responses to questions like *"Have you used drugs other than those required for medical reasons?"* A higher score indicates more problematic drug use. The participant's internal consistency is 0.84.

### 2.2.5 | Alcohol use disorders identification test

The alcohol use disorders identification test (AUDIT) (Saunders et al., 1993) is a 10-item self-report screening measure for alcohol use, alcohol dependence, and alcohol-related problems. Respondents were asked to respond honestly to questions such as *"Have you or someone else been injured because of your drinking?"* Higher scores are indicative of harmful alcohol use and related outcomes. The current study shows good internal consistency, as evidenced by a participant  $\alpha$  of 0.91.

### 2.2.6 | Coronavirus anxiety scale

The coronavirus anxiety scale (CAS) (S. A. Lee, 2020) is a five-item scale (5-point Likert scale) self-report screening measure for severe anxiety associated with the coronavirus. Respondents reported the frequency of anxiety-related symptoms during the past 2 weeks related to the coronavirus; For example, *"I felt paralyzed or frozen when I thought about or was exposed to information about the coronavirus."* Scores of 9 or greater suggest dysfunctional anxiety. The CAS demonstrates good internal consistency (Cronbach's  $\alpha = 0.86$ ).

## 2.3 | Procedures

The data were collected with the Institutional Review Board's approval and permission of the professors. Through Qualtrics, participants completed a demographic survey, BRCS, LOT-R, DAST-10, AUDIT, and CAS. The researchers conducted analyses using the IBM Statistical Package for Social Sciences, v.27.

3 | RESULTS

Pearson product-moment correlation, independent sample t-test, one-way analysis of variance, and multiple regression analyses were conducted to examine the relationships among the scores of COVID anxiety, coping, optimism, alcohol use, and drug use. The results revealed that the COVID anxiety score is negatively correlated with coping and optimism scores, and positively related with alcohol use and drug use scores. The findings show that coping and optimism scores are negatively and significantly correlated with alcohol use and drug use scores. Additionally, coping and optimism scores are positively related, likewise, alcohol use and drug use scores are positively related. Table 1 summarizes the correlational results.

There was a significant difference in optimism scores for males ( $M = 19.51$ ,  $SD = 3.12$ ) and females ( $M = 19.21$ ,  $SD = 3.83$ );  $t(777) = 0.59$ ,  $p = 0.02$ , in that males are more optimistic than females. Similarly, there was a significant difference in alcohol use scores for males ( $M = 15.90$ ,  $SD = 7.91$ ) and females ( $M = 15.03$ ,  $SD = 7.11$ );  $t(750) = 1.15$ ,  $p = 0.05$ , with males having more alcohol use problems. There were no other significant findings for gender in this sample.

The multiple regression model with COVID anxiety, coping, and optimism as predictors of alcohol use produced  $R^2 = 0.46$ ,  $F(3, 751) = 211.29$ ,  $p < 0.000$ . COVID anxiety and coping have significant  $\beta$  regression weights (1.29, -0.13, respectively) and predict reported alcohol use (Table 2). The multiple regression model with COVID anxiety, coping, and optimism as predictors of drug use produced  $R^2 = 0.19$ ,  $F(3, 779) = 62.62$ ,  $p < 0.000$ . Only COVID anxiety has a significant  $\beta$  regression weight (0.67) and predicts reported drug use. Optimism, however, did not contribute to the significance of the multiple regression model (see Table 3).

We conducted additional analyses and Tukey post hoc tests to compare mean differences between student classifications in COVID anxiety, alcohol use, drug use, and optimism. There were significant differences between student classification groups in alcohol use ( $F(4, 717) = 4.76$ ,  $p < 0.001$ ) and optimism ( $F(4, 740) = 3.17$ ,  $p < 0.01$ ). The Tukey post hoc tests revealed that freshman students ( $M = 17.60$ ) reported the highest alcohol use level among all four classifications and significantly higher than juniors ( $M = 14.50$ ) and graduate students ( $M = 13.90$ ); seniors ( $M = 16.30$ ) reported significantly higher alcohol use than graduate students. Post hoc tests revealed that graduate students ( $M = 20.10$ ) reported higher optimism than freshman students ( $M = 18.72$ ), who had the lowest optimism level (Tables 4 and 5). There were no other significant findings for classification in this sample.

4 | DISCUSSION

This study examined the nature of the relationship between COVID-related anxiety and substance use among African-American young adults, and the extent to which adaptive coping and optimism influenced these relationships. Consistent with previous research (McKnight-Eily et al., 2021), the current results show that

TABLE 1 Correlations among COVID anxiety, coping, optimism, alcohol use, and drug use

| Variable         | 1 | 2      | 3       | 4        | 5       |
|------------------|---|--------|---------|----------|---------|
| 1. COVID anxiety |   | -0.21* | -0.18** | 0.67**   | 0.44**  |
| 2. Coping        |   |        | 0.35**  | -0.21**  | -0.11** |
| 3. Optimism      |   |        |         | -0.155** | -0.09*  |
| 4. Alcohol use   |   |        |         |          | 0.44**  |
| 5. Drug use      |   |        |         |          |         |

\* $p < 0.05$  indicating significant findings.  
\*\* $p < 0.01$  indicating significant findings.

**TABLE 2** Multiple regression among COVID anxiety, coping, optimism, and alcohol use

| Source                 | B     | SE B | $\beta$ | t     | p    |
|------------------------|-------|------|---------|-------|------|
| Alcohol use (constant) | 8.08  | 1.30 |         | 6.21  | 0.00 |
| COVID anxiety          | 1.29  | 0.06 | 0.66    | 23.71 | 0.00 |
| Coping                 | −0.13 | 0.05 | −0.07   | −2.37 | 0.02 |
| Optimism               | −0.04 | 0.06 | −0.02   | −0.71 | 0.48 |

Note: SE is the standard error of B. Alcohol use is the alcohol misuse self-statements scale. COVID anxiety is the coronavirus anxiety self-statements scale. Coping is the brief resilience coping self-statements scale. Optimism is the life outlook self-statements scale.

**TABLE 3** Multiple regression among COVID anxiety, coping, optimism, and drug use

| Source              | B     | SE B | $\beta$ | t     | p    |
|---------------------|-------|------|---------|-------|------|
| Drug use (constant) | 8.79  | 1.27 |         | 6.94  | 0.00 |
| COVID anxiety       | 0.67  | 0.05 | 0.44    | 13.19 | 0.00 |
| Coping              | −0.02 | 0.05 | −0.02   | −0.47 | 0.64 |
| Optimism            | −0.01 | 0.06 | −0.00   | −0.11 | 0.91 |

Note: SE is the standard error of B. Drug use is the prescription and illicit drug misuse self-statements scale. COVID anxiety is the coronavirus anxiety self-statements scale. Coping is the brief resilience coping self-statements scale. Optimism is the life outlook self-statements scale.

**TABLE 4** Tukey post hoc comparison for optimism and student classification

|          | Classification   | Mean difference | SE   | p Tukey |
|----------|------------------|-----------------|------|---------|
| Freshman | Sophomore        | −0.22           | 0.53 | 0.99    |
|          | Junior           | −0.97           | 0.49 | 0.28    |
|          | Senior           | −0.39           | 0.46 | 0.91    |
|          | Graduate student | −1.4*           | 0.52 | 0.04    |

\*The mean difference is significant at the  $p < 0.05$  level.

**TABLE 5** Tukey post hoc comparison for alcohol use and student classification

|          | Classification   | Mean difference | SE    | pTukey |
|----------|------------------|-----------------|-------|--------|
| Freshman | Sophomore        | 1.74            | 1.08  | 0.49   |
|          | Junior           | 3.09*           | 0.99  | 0.02   |
|          | Senior           | 1.22            | 0.94  | 0.69   |
|          | Graduate student | 3.67*           | 1.04  | 0.00   |
| Senior   | Freshman         | −1.2            | 0.94  | 0.69   |
|          | Sophomore        | 0.52            | 0.86  | 0.97   |
|          | Junior           | 1.87            | 0.743 | 0.088  |
|          | Graduate student | 2.45*           | 0.806 | 0.020  |

\*The mean difference is significant at the  $p < 0.05$  level.

marginalized groups are at increased risk for anxiety and substance use during the COVID-19 pandemic. African-Americans are disproportionately impacted by unemployment and job-related exposure risk (Gould & Wilson, 2020). At the peak of the COVID-19 pandemic, African-Americans were 3.7 times more likely to die than Whites (indigenous people—3.5 times, Latinos—2.8 times, and Asians—1.4 times) (Centers for Disease Control and Prevention (CDC), 2021a). The threats to physical health, prolonged social isolation, social and economic uncertainty, and fear and anxiety about the pandemic create distressful emotional responses.

Additionally, the prominence of racism and the current state of the criminal justice system have exacerbated the effects of COVID-19 on marginalized groups like African-Americans. Police brutality against marginalized groups disproportionately targets African-Americans (Bridges, 2020; Edwards et al., 2020). African-Americans are more likely to be killed by police than White individuals (Edwards et al., 2020). Furthermore, African-Americans are devalued, criminalized, and are subject to negative portrayals in the media and in law enforcement and legal settings (Baker, 2021). The murder of George Floyd and subsequent media portrayals brought global attention to police brutality and racism. Racism has ultimately been categorized as a public health crisis (Roberts, 2021). It is logical to surmise that police violence contributes to negative mental and physical health outcomes.

Researchers have likened the compounded effects of racism and the pandemic to “a pandemic on a pandemic” for African-Americans (Laurencin & Walker, 2020). The consequences of structural racism and racist policing have various consequences for African-Americans including direct trauma, medical mistrust, and mistreatment, thus increasing susceptibility to contracting and complications associated with COVID-19 (Laurencin & Walker, 2020). African-American men share an increased COVID-19 exposure risk due to the disproportionate detainment in the criminal justice system (Treadwell, 2020). Consequently, family members, namely African-American women (mothers, sisters, spouses, partners, etc.) must carry the mental health burden of sustaining the family (Wilderman & Wang, 2017), while simultaneously shouldering the worry associated with the risk of contracting COVID-19. Consequently, syndemics (i.e., social and economic inequities, structural racism, and COVID-19) play a major part in exacerbating the overall quality of life for marginalized groups, especially African-Americans.

## 4.1 | Anxiety and substance use

The results indicate that COVID anxiety, coping, and optimism are significantly related to substance use. COVID anxiety is negatively related to adaptive coping and optimism. This indicates that higher levels of optimism and adaptive coping are associated with lower COVID anxiety. Similarly, higher optimism and adaptive coping are associated with lower alcohol and drug use. This signifies that optimism and adaptive coping may serve as protective factors for anxiety and risk for substance abuse. The results indicate that COVID anxiety is positively related to substance use. As anxiety levels increase so do alcohol and drug use. While COVID anxiety and coping are significant predictors of alcohol use in the current sample, COVID anxiety, alone, is a significant predictor of drug use. Singly, optimism is a significant predictor of alcohol and drug use; When COVID anxiety and coping are taken into account, optimism is no longer a reliable predictor. Clearly, anxiety associated with COVID is strongly linked with substance use and poor health outcomes (C. Liu et al., 2020; Yao et al., 2020).

During the COVID pandemic, the percentage of adults, especially young adults, experiencing symptoms of an anxiety disorder and other mental health issues increased significantly (Vahratian et al., 2021). Experiencing a traumatic event, like the pandemic, commonly leads to increased substance use (i.e., self-medication) (Mills et al., 2011) and increased anxiety sensitivity. Increased anxiety sensitivity, in turn, results in increased substance use (Vujanovic et al., 2018). Anxiety and substance use disorders commonly co-occur, resulting in more severe symptoms and disability (Brady et al., 2013; Fatseas et al., 2018; McHugh, 2015). Further, anxiety disorder is associated with intense cravings and higher substance use (Fatseas et al., 2018). Apparently, experiencing anxiety and using substances produces a causal nexus that escalates use and symptoms.

## 4.2 | Student optimism and substance use

Young adults with higher COVID-related anxiety had higher alcohol use and drug use. The current findings confirm that young adults tend to rely on substances to cope with anxiety and distress during the pandemic (Prowse et al., 2021). COVID-related trauma has disproportionately affected young adults' well-being, namely anxiety and depression (Zhu et al., 2021), psychological distress and loneliness (McGinty et al., 2020), and substance use (Prowse et al., 2021; Rudenstine et al., 2020; Tran et al., 2020). The current results reveal that freshman students report higher alcohol use compared to juniors and graduate students. Also, senior-level students report higher alcohol use than graduate students. This finding corroborates that lower educational attainment is associated with higher and more risky alcohol consumption behaviors (Rosoff et al., 2021). Mental health issues including substance abuse, anxiety, PTSD, depression, and overall psychological stress are more prevalent now than in the past decade. The same issues, however, are even more abundant in the younger population of adults (18–29 years) due to the disruption of social circles, difficulties with online schooling, or the loneliness of isolation. Taken together, the pandemic-related psychological stress appears to manifest in the higher levels of substance use among underclass students.

It is important to note that freshman students also have lower optimism compared to graduate students. The hallmark of the freshman year of college is major transitions, which were undoubtedly complicated by the life-altering events and shifts associated with the pandemic. It is reasonable to expect that the entering college freshmen are less confident about the future compared to the more advanced graduate students with graduation in sight. Also, more educated individuals tend to be more optimistic than those with less education (Franke & Elliott, 2021). Additionally, optimism serves as a protective factor and has been known to be associated with physical and mental health behaviors (Carver et al., 2010; Marin et al., 2019; Setia et al., 2021; Wray et al., 2013). Research also confirms that the resources and skills associated with greater resilience may be cultivated and practiced which, in turn, further builds resilience and helps us to prevent substance abuse (Yaugher et al., 2020). The aforementioned differences in optimism may account for freshman students' higher substance use compared to graduate students. Adopting optimism skill sets early in life may offer benefits for the health of youth and young adults (Setia et al., 2021).

## 4.3 | Coping and substance use

Our results show that adaptive coping is related to reduced COVID-19 anxiety, alcohol, and drug use. The results indicate that adaptive coping predicts less alcohol use, but not drug use. Similarly, previous researchers found that substance use is connected with coping and anxiety (Cepeda et al., 2010; Prowse et al., 2021). People with higher adaptive coping scores tend to be goal-oriented and use effective and active problem-solving strategies when encountering stress (Sinclair & Wallston, 2004). However, a substantial number of people use maladaptive coping strategies to reduce stress. Consistent with the current findings, they either initiated or increased substance use to cope with stress or emotions related to COVID-19 (Czeisler et al., 2020). Active and adaptive forms of coping (e.g., problem-solving, seeking social support, reframing, and looking for alternatives) facilitate positive outcomes including better adaptation, mental health, and well-being, whereas passive forms of coping, such as denials, blame, and avoidance behaviors or maladaptive coping such as substance use are often linked to negative mental health outcomes such as symptoms of anxiety and substance use (Lazarus, 1993; Sinclair & Wallston, 2004).

## 4.4 | Gender, optimism, and substance use

Males are found to have higher optimism levels than females and males report higher alcohol use than females. Consistent with the current findings, males are identified as more optimistic while reporting higher substance use

compared to females (Ansari et al., 2018; Duncan, 2020; Hinz et al., 2017). Social isolation and the disruption of routines have led to increased alcohol use (Boschuetz et al., 2020). Women are disproportionately affected by the detrimental effects of isolationism resulting from COVID-19. These effects, namely anxiety, insomnia, and depression affect women significantly and can even lead to the worsening of traumatic outcomes (Guadagni et al., 2020). Women and caregivers are at increased risk for coronavirus burnout (Padilla et al., 2021). Burnout is caused by chronic stressors under conditions of high demands and limited resources (Maslach & Leiter, 2016), which are distinctive characteristics of the pandemic-related demands women and caregivers face. Additionally, women may tend to be more compassionate and empathetic regarding the suffering of others (Benenson et al., 2021).

The COVID-19 pandemic has brought unprecedented disruptions to global economies and has led to income loss and high unemployment rates and has altered employment relationships globally (Center on Budget and Policy Priorities, 2021). Women are 24% more likely to permanently lose their job than men because of the pandemic. Women also expect their labor income to fall by 50% more than men (Dang & Nguyen, 2021). Emerging evidence shows that women may be more severely affected by the pandemic. The impact of the pandemic extends beyond the immediate restructuring of employment to a shift in gender-role attitudes and responsibilities within households because of changes in the division of household labor (Reichelt et al., 2020).

#### 4.5 | African-Americans and COVID-19

African-Americans have high levels of exposure to psychosocial stressors, including trauma, discrimination, and a disproportionate impact from COVID-19. With the lessons from previous epidemics, natural disasters, and other public health crises, we expect significant mental health challenges during and after COVID for African-Americans in general and in young adults, in particular (CDC, 2021b; Cepeda et al., 2010; Goldmann & Galea, 2014; North et al., 2011). However, research suggests that African-Americans display high levels of resilience (Myers et al., 2015).

The theory of syndemics asserts that systemic inequities caused by historical wrongdoings greatly intensifies the effects and concentration of epidemics, with COVID-19 being no different (Gravlee, 2020). Negative historical factors in the African-American community, from chattel slavery, and Jim Crow laws to recent racial injustices, lead to, among other things, less economic mobility, the prevalence of serious medical conditions, and poorer health outcomes. The combination of these major systemic factors contributes to the disproportionate detriment of diseases and the extremely high risk of death from COVID-19 among African-Americans (nine times higher than it is for whites).

The pandemic has spotlighted the long-lasting racial disparities which have been powered by decades of inequities including discriminatory treatment, biased opportunity, and structural barriers like limited access to resources and job discrimination (Greenhouse, 2020), which have contributed to diminished well-being and health in African-Americans (I. J. Lee & Ahmed, 2021). Likewise, discrimination, healthcare access, occupation, education, income, and wealth gaps affect health equity and health risk (CDC, 2021c). Accordingly, African-Americans have contracted COVID-19 at least three times the rate of White Americans (Greenhouse, 2020).

African-Americans must deal with prejudice, discrimination, and the magnification of pre-existing health disparities while simultaneously facing COVID-19 (Lund, 2020). These further increases stress and exacerbate the COVID-19 health outcomes of African-Americans (Dionne & Turkmen, 2020). Furthermore, African-Americans and Asian-Americans are more likely than other groups to report negative experiences because of ethnicity and race since the outbreak of COVID-19 (Ruiz et al., 2020). Overall, the syndemic effect of racial discrimination and COVID-19 impacts the health and well-being of these marginalized groups, especially young adults (Addo, 2020). Given the syndemic-influenced mental health needs of African-American young adults and the limited knowledge of COVID-19, colleges and universities at various levels may provide psychoeducational programs and activities to

reduce stress, manage anxiety and depression, and develop culturally sensitive and constructive coping strategies. Peer mentors may assist young adults to reduce feelings of isolation and to enhance well-being by offering activities that cultivate social connection and social support. Psychoeducational workshops are effective in enhancing mental and physical health literacy. Enhancing mental health literacy has implications for influencing help-seeking behavior. Colleges, universities, and local communities are optimal settings for programming designed to improve health literacy because of the high-risk age groups served at these institutions. Also, to promote help-seeking behaviors among marginalized ethnic groups, culturally responsive mental health services should be offered within the communities. Health professionals should actively engage with community members and organizations to improve health literacy and utilize culturally competent tools and resources when addressing mental health disorders and COVID-19-related symptoms in African-Americans.

#### 4.6 | Limitations and directions for future research

The findings in this study are subject to a few limitations. First, all responses were self-reported and might be subject to recall, response, or social desirability biases. Second, the generalizability of estimates for populations is limited because the participants were recruited through snowball sampling. Furthermore, the estimates are intended to represent African-American young adults aged 18–35 years living in the United States. However, representativeness might be limited by the indirect exclusion of persons without Internet access. Third, the data are cross-sectional, which precludes the ability to make causal inferences. Despite these limitations, the large sample size and the timeliness and relevance are strengths of our study.

The results have direct implications for treatment and prevention programs designed to promote effective coping strategies during the pandemic, social injustice, and trauma, in general, for African-American young adults. Practitioners are encouraged to use culturally relevant educational interventions to enhance African-American young adults' ability to resist ineffective and maladaptive coping such as substance use and to leverage optimism and adaptive coping to ameliorate the deleterious effects of the pandemic on psychological well-being. Future research should examine the contributions of individual factors, along with group social-political factors/epidemics on the physical and mental health outcomes of African-Americans. This is particularly of import considering the confluence of the COVID-19 pandemic and the escalation of racial injustices involving African-Americans.

### 5 | CONCLUSION

Our study shows that COVID anxiety is a significant predictor for drug use and alcohol use in African-American young adults, and adaptive coping is a significant predictor of lower alcohol use. While significantly related, optimism is not a significant predictor for alcohol and drug use when COVID anxiety and coping are considered. Under-class students experience less optimism and report greater alcohol use than upper-class students. On the other hand, males have higher optimism but report more alcohol use than females. The findings reveal that COVID-related anxiety is a risk factor for substance use, and that optimism and adaptive coping are significantly related to lower COVID anxiety levels. Clearly, the impact of the COVID-19 pandemic is complex and requires extensive investigation to elucidate the plethora of consequences on African-Americans.

Experiencing the devastating, traumatizing, and seemingly unrelentless events that have occurred during the COVID-19 pandemic have the potential to test the resolve and coping skills of even the most proficient adult. This study highlights the potential to effectively manage the inimical effects of COVID-19 with mental and behavioral health management strategies.

## ACKNOWLEDGMENTS

Nkosi Singleton received funding from the Florida A&M University Office of Undergraduate Research World Class Scholars Summer Research Experience Program. The authors would like to thank the scholars of the Center for Ethnic Psychological Research and Applications for their help with the literature search.

## CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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## PEER REVIEW

The peer review history for this article is available at <https://publons.com/publon/10.1002/jcop.22863>

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**How to cite this article:** Singleton, G., Johnson, L., Singleton, N., & Li, H. (2022). COVID-19-related anxiety: How do coping and optimism relate to substance use in African-American young adults? *Journal of Community Psychology*, 1–18. <https://doi.org/10.1002/jcop.22863>