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Experiences of Adverse Childhood Events and Racial Discrimination in Relation to Depressive Symptoms in College Students

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Abstract

Problem—The college years mark a critical period for experiencing multiple stressors and mental health problems. This study applied minority stress theory to examine adverse childhood events (ACEs) and experiences of racial discrimination, and their relationships to depressive symptoms among racially/ethnically diverse college students.

Methods—We analyzed cross-sectional data from 2,685 college students attending seven colleges/universities in the state of Georgia. Measures included sociodemographics, ACEs, experiences of racial discrimination, and depressive symptoms.

Results—Participants' average age was 20.51 (SD=1.94) years; 63.9% were female, 21.9% Black, and 7.8% Hispanic. Multivariable regression indicated that more ACEs predicted more experiences of racial discrimination, and both ACEs and discrimination experiences predicted greater depressive symptoms ($p < .001$). Experiencing more ACEs was associated with being older, female, sexual minorities, White (vs. Asian), Hispanic, having less educated parents, and students at public colleges/universities or technical colleges (vs. private colleges/universities, $p < .05$). More reports of racial discrimination were associated with being sexual and/or racial/ethnic minorities ($p < .05$). Greater depressive symptoms were associated with being younger, female, sexual minorities, White (vs. Black), and students from public (vs. private) colleges/universities ($p < .01$).

Conclusions—College campuses should provide resources to address ACEs, racial discrimination, and mental health to support students' academic and psychosocial success.

Keywords

mental health; depression; racial discrimination; adverse childhood experiences; college students; young adults

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Declaration of Interests

The authors declare no conflicts of interest.

Introduction

The college years mark a critical period of high-risk for mental health problems, particularly depression, both globally (Auerbach et al., 2018) and in the US (Mortier, Cuijpers, Kiekens, & Auerbach, 2018). In the US, roughly one-third of undergraduates exhibit significant symptoms of a mental health problem, such as depression, generalized anxiety, or suicidality (Eisenberg, Hunt, & Speer, 2013), and rates appear to be increasing (Lipson, Gaddis, Heinze, Beck, & Eisenberg, 2015). The risk for mental health problems is increased by a range of psychosocial risk factors. Particularly relevant risk factors among young adults and among racially and ethnically diverse populations are adverse childhood events (ACEs) and experiences of racial discrimination, described more fully below.

A range of ACEs have been studied. A landmark study conducted by Felitti et al. (1998) examined ACEs including abuse (i.e., emotional, physical, sexual), household dysfunction (i.e., domestic violence, household substance abuse, mental illness in household, parental separation/divorce, criminal household member), and neglect (i.e., emotional, physical) (Centers for Disease Control & Prevention [CDC], 2016; Felitti et al., 1998). Other studies have expanded the range of ACEs to include other experiences, such as racial discrimination, witnessing community violence, bullying, living in unsafe neighborhoods, and history with foster care, among others (Cronholm et al., 2015; Pachter et al., 2014; Wade, Shea, Rubin, & Wood, 2014). The research has consistently documented associations of ACEs to risky behaviors, negative health outcomes, unemployment, poverty, and early mortality (CDC, 2016; Cronholm et al., 2015; Dube et al., 2003; Dube et al., 2006; Felitti et al., 1998; Metzler, Merrick, Klevens, Ports, & Ford, 2017; Pachter et al., 2014; Wade et al., 2014; Williamson, Thompson, Anda, Dietz, & Felitti, 2002).

In particular, the prevalence and impact of ACEs on diverse populations are critical to consider. For example, a study from Cronholm et al. (2015) included 36.1% Black respondents, 36.8% young adults, and 20.0% with less than a high school education (Cronholm et al., 2015). This study reported increased risk among Blacks for the majority of conventional ACEs (with the exceptions of sexual abuse, emotional neglect, and physical neglect) as well as other ACEs, including witnessing community violence, racial discrimination, and feeling that their neighborhood was unsafe (Cronholm et al., 2015). Examining a broad range of ACEs in diverse samples is therefore important for developing a stronger understanding of the prevalence and impact of ACEs in different subgroups.

Racial discrimination is a chronic, multifaceted (i.e., biological, social, psychological) stressor (Clark, Anderson, Clark, & Williams, 1999). Research has shown that Blacks, particularly Black males and young men, report experiencing discrimination at higher frequencies (e.g., once every other week) compared to other racial and ethnic minority groups (Cokley et al., 2017; Neblett, Bernard, & Banks, 2016). However, other studies have found that Asians and Hispanics also report frequent experiences of perceived discrimination (Cokley et al., 2017; Stevens, Liu, & Chen, 2018). Although acts of discrimination against Blacks are often race-related, for Hispanic and Asian students, discrimination is often based on perceiving them as foreigners (Cokley et al., 2017). Research has shown that exposures to

racism and racial discrimination are negatively associated with a range of risk factors (e.g., behavioral, psychological) that can negatively impact psychological and physical health and increase negative health-risk behaviors, such as drug use (Carter, Lau, Johnson, & Kirkinis, 2017; Clark et al., 1999), with a recent meta-analysis indicating that the largest effect was on psychological health (e.g., depression and anxiety) (Carter et al., 2017).

ACEs and racial discrimination are particularly relevant risk factors for mental health issues among college students. Research has shown that many students who arrive on college campuses have been exposed to trauma (Forster, Grigsby, Rogers, & Benjamin, 2018), with 30% to 84% experiencing at least one traumatic event in either childhood or adulthood (Karatekin, 2018; Vrana & Lauterbach, 1994). Unfortunately, college students who are exposed to ACEs are at increased risk for mental health problems (Karatekin, 2018), including depressive disorders (Karatekin, 2018; Kessler et al., 2010), anxiety disorders (Karatekin, 2018; Korkeila et al., 2010), eating disorders (Smyth, Heron, Wonderlich, Crosby, & Thompson, 2008), substance use (Coleman, Zawadzki, Heron, Vartanian, & Smyth, 2016; Forster et al., 2018), insomnia (Gress-Smith, Roubinov, Andreotti, Compas, & Luecken, 2015), and college dropout (Duncan, 2000). Moreover, mental health problems related to ACEs have been shown to persist from adolescence into adulthood (Clark, Caldwell, Power, & Stansfeld, 2010).

Research has documented experiences of racial discrimination among the broad range of racial/ethnic minority college students, with specific minority subgroups being at particular risk for experiencing discrimination (Stevens et al., 2018). For college students, experiences of discrimination can take the form of micro-aggressions from faculty and peers, as well as unwelcoming or socially uninviting undergraduate campus environments (Stevens et al., 2018). Such experiences of racial discrimination can negatively impact self-esteem, well-being, and mental health of racial/ethnic college students (Cokley et al., 2017). Several other studies have also highlighted the ways in which discrimination intersects with other aspects of racial/ethnic minority students' experience (e.g., identity, imposter syndrome) (Stevens et al., 2018), which can lead to adverse effects on students' academic performance (Stevens et al., 2018).

The current study aimed to contribute to the limited existing research focusing on the impacts of ACEs and racial discrimination on mental health among diverse young adult college students (Lee & Chen, 2017). Minority stress theory suggests that conditions such as belonging to stigmatized social categories cause stress and may lead to negative mental and physical outcomes (Meyer, 2003). Minority stress theory distinguishes the unique and additive stress to which individuals are exposed as a result of their minority social status, highlighting the relevant individual biological, genetic, or other nonsocial stressors (Meyer, 2003). Thus, this study applied minority stress theory to explore sociodemographic predictors related to ACEs, experiences of discrimination, and depressive symptoms and how ACEs and experiencing racial discrimination may contribute to depressive symptoms in a sample of college students in southeastern US. Based on aforementioned literature, we hypothesized that 1) racial/ethnic minorities would experience more ACEs, racial discrimination, and depressive symptoms; 2) ACEs would predict experiences of

discrimination; and 3) ACEs and experiences of discrimination would predict greater depressive symptoms.

Materials & Methods

Procedures & Participants

Data for the current study are derived from Project DECOY (**D**ocumenting **E**xperiences with **C**igarettes and **O**ther Tobacco in **Y**oung Adults) (Berg et al., 2016), which was approved by the Institutional Review Boards of Emory University and the participating colleges/universities. The study was a two-year longitudinal, cohort study that involved 3,418 racially/ethnically diverse young adults. In order to obtain a wide range of young adults regarding sociodemographic backgrounds, participants were recruited from rural and urban college campus in Georgia, including two public universities, two private colleges/universities, two community/technical colleges, and a historically black college/university (HBCU). Eligibility criteria for participants were 18 to 25 years old and able to read English.

For recruitment, college email addresses were obtained from the registrar's office from each college/university for students meeting eligibility criteria. Three thousand 18–25-year olds were randomly selected from one private and two public universities. The remainder of the schools had 18–25-year-old student populations of fewer than 3,000; therefore, the entire student population of that age range at those schools was included in recruitment. The total response rate was 22.9% (N=3,574/15,607). Seven days after initial recruitment and completion of the baseline survey, we asked participants to confirm their participation by clicking a “confirm” link included in emails sent to them, which reiterated the tasks involved in the study and its timeline. Once participants clicked “confirm”, they were enrolled into the study and sent their first incentive in the form of a \$30 gift card via email. The confirmation rate was 95.6% (N=3,418/3,574). The intent was to enroll participants who were engaged in email and were potentially more likely to be retained in the subsequent waves of data collection.

Data collection began in Fall 2014 and consisted of individual assessments every four months for two years (during Fall, Spring, and Summer). The current analysis pulls data mainly from Waves 1 (Fall 2014), 2 (Spring 2015), and 5 (Spring 2016) and included 2,685 participants who had complete data relating to the current aims (78.6% of 3,418 participants at Wave 1).

Measures

Data from the Wave 1 assessment of sociodemographic information, Wave 2 assessments for ACEs, and Wave 5 assessments for experiences of racial discrimination and depressive symptoms were used for data analysis.

Sociodemographic Characteristics—The sociodemographic factors that were assessed included age, sex, sexual orientation, race, ethnicity, and parental education. We also coded school type (private, public, technical college, HBCU) and whether the campus was located in a rural or urban setting.

Adverse Childhood Experiences (ACEs)—ACEs were assessed using the ten-item scale developed by the Centers for Disease Control and Prevention (CDC) and used in the Behavioral Risk Factor Surveillance System (BRFSS) (CDC, 2016; Felitti et al., 1998). The 10-items were used to evaluate potential stressful and traumatic experiences that occurred in the participant’s first 18 years of life. These experiences include abuse (e.g., physical, sexual), household challenges (e.g., parents with mental health, parental substance use, interpersonal violence), and neglect (Felitti et al., 1998). Response options were 0=No and 1=Yes. Sample items include, “Parents divorced” and “Family diagnosed with depression.” The total score was computed by summing the responses to all 10 items. Scores could range from 0 to 10, with higher scores indicating more ACEs.

Experiences of Discrimination—Using previously published items (Greene, Way, & Pahl, 2006), we assessed experiences of discrimination by asking participants, “How often have you felt as though you were treated badly because of your race or ethnicity?” Responses options were: 1=Never, 2=Occasional, 3=Sometimes, 4=Often, and 5=Very often. For the purposes of this study, response options were collapsed into three categories: 1=Never, 2=Occasional, and 3=Sometimes to Very Often (i.e., at least sometimes) (Greene, Way, & Pahl, 2006).

Depressive Symptoms—Depressive symptoms were assessed from the Patient Health Questionnaire – 9 item (PHQ-9), which is a 9-item scale that utilized diagnostic criteria for depressive disorders from the Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV (Lowe et al., 2004). Response options ranged from 0=Not at all to 3=Nearly every day. The scale items asked participants if they were bothered by any of the following problems during the past two weeks (e.g., “little interest or pleasure in doing things”). The total score was computed by summing the responses to all 9 items. Scores range from 0 to 27, with higher scores indicating increased depressive symptoms. Cronbach’s alpha was .87.

Data Analysis

Descriptive statistics were conducted to characterize the sample. We then conducted bivariate analyses including chi-square tests and one-way ANOVAs to examine correlates of ACEs, experiences of racial discrimination, and depressive symptoms, respectively. We then conducted multivariable regression to examine correlates of: 1) ACEs using linear regression and including only sociodemographic factors; 2) experiences of racial discrimination using ordinal regression and entering sociodemographic factors and ACE scores; and 3) depressive symptoms using linear regression and entering sociodemographic factors, ACE scores, and experiences of discrimination. Note that preliminary analyses were conducted to explore interactions between ACEs and experiences of discrimination and between race, ACEs, and experiences of discrimination in relation to depressive symptoms. These analyses did not identify any significant interaction effects; thus, we provide the results for the full sample with Wave 5 data. All analyses were conducted using SPSS 24.0, and alpha was set at .05.

Results

Participant Characteristics

Per Table 1, the average age at baseline was 20.51 (SD=1.94) years, 63.9% (n=1,715) was female, 21.9% (n=581) was Black, 7.8% (n=207) was Hispanic, and 8.2% (n=218) was sexual minority. Additionally, 53.9% (n=1,431) of participants reported parental education level of at least a bachelor's degree and higher, 43.9% (n=1,179) were predominantly enrolled in a private institution, and 52.8% (n=1,417) reported attending school in a rural setting.

The average ACEs score was 1.25 (SD=1.75), with 48.2% (N=1,189) reporting no ACEs, 21.6% (N=533) reporting 1, 11.8% (N=291) reporting 2, 6.8% (n=167) reporting 3, and the remainder (11.6%) reporting more than 3. Average number of experiences of discrimination was 1.56 (SD=0.74), with 59.7% (1,602) reporting no discrimination, 25.0% (N=672) experiencing occasional discrimination, and 15.3% (N=411) experiencing discrimination at least sometimes. The average depressive symptom score on the PHQ-9 was 5.36 (SD=5.69).

Bivariate Analyses

Bivariate analyses (Table 1) indicated that ACE scores were associated with greater reports of experiences of discrimination ($p<.001$), and more ACEs and reports of racial discrimination were associated with greater depressive symptoms ($p's<.001$). In addition, ACE scores were associated with being older ($p<.001$), female ($p<.001$), sexual minority ($p<.001$), Black or Other race ($p<.001$), Hispanic ($p<.001$), from homes with lower parental education ($p<.001$), and students at public colleges/universities, technical colleges, or HBCU versus private colleges/universities ($p<.001$). Reports of racial discrimination were associated with being older ($p=.026$), female ($p<.001$), heterosexual ($p=.005$), Non-Hispanic ($p<.001$), Black or Other race ($p<.001$), from homes with lower parental education ($p<.001$), students at an HBCU ($p<.001$), and from rural settings ($p=.001$). Reporting greater depressive symptoms was associated with being older ($p=.001$), female ($p<.001$), sexual minority ($p<.001$), White, Asian, or Other ($p=.031$), Hispanic ($p=.017$), from homes with lower parental education ($p=.019$), and students at private or public colleges/universities or technical college (vs. HBCU, $p=.001$).

Multivariable Analyses

Multivariable regression analyses (Table 2) indicated that higher ACE scores were associated with being older ($B=0.05$, $p=.010$), female ($B=0.23$, $p=.002$), sexual minority ($B=0.90$, $p<.001$), not Asian (vs. White; $B=-0.36$, $p=.013$), Hispanic ($B=0.31$, $p=.019$), from homes with lower parental education ($B=-.054$, $p<.001$), and students at public colleges/universities ($B=0.31$, $p<.001$) or technical colleges ($B=0.31$, $p=.004$) versus private colleges/universities.

More reports of racial discrimination were associated with more reports of ACEs ($OR=0.19$, $p<.001$), as well as not being a sexual minority ($OR=-0.36$, $p=.030$) and being Black ($OR=2.06$, $p<.001$), Asian ($OR=1.96$, $p<.001$), or Other race ($OR=1.15$, $p<.001$), and being

Hispanic (OR=0.94, $p<.001$). Adding ACE scores to the model predicting experiences of discrimination increased the Nagelkerke R-Square from .236 to .257 ($p<.001$).

Greater depressive symptoms were associated with more reports of ACEs ($B=0.49$, $p<.001$) and experiences of racial discrimination ($B=1.13$, $p<.001$), as well as being younger ($B=-0.20$, $p=.001$), female ($B=0.80$, $p=.001$), sexual minority ($B=1.13$, $p=.007$), not Black (vs. White, $B=-1.35$, $p=.001$), and students from public (vs. private) colleges/universities ($B=0.82$, $p=.005$). Adding ACE scores and experiences of discrimination to the model predicting depressive symptoms increased the Adjusted R-Square from .023 to .065 ($p<.001$).

Discussion

Main findings included that racial or ethnic minority status was related to more reports of ACEs and racial discrimination, which aligns with prior research (Cokley et al., 2017; Kessler et al., 2010; Stevens et al., 2018). However, another critical finding was that being a racial or ethnic minority did not predict depressive symptoms. In fact, compared to Blacks, Whites showed greater average depressive symptoms. Our finding that being Black was associated with lower depressive symptoms compared to being White was also consistent with the literature, as some studies report lower or equivalent rates of depressive symptoms in Black individuals (Riolo, Nguyen, Greden, & King, 2005). In contrast, some other studies report higher rates of major depressive disorder in Blacks compared with White individuals (Neighbors, Jackson, Bowman, & Gurin, 1983; Somervell, Leaf, Weissman, Blazer, & Bruce, 1989). Studies have tried to address this discrepancy in reports by considering that the prevalence of depression does differ significantly by race/ethnicity, but that comparative rates depend on the type of depression experienced by different racial/ethnic groups (Riolo et al., 2005). More research on how we can measure the ways in which depression manifest in different racial/ethnic groups need to be conducted.

In addition, more reports of ACEs predicted racial discrimination, and more ACEs and experiences of racial discrimination predicted greater depressive symptoms. These findings align with the literature (Cokley et al., 2017; Kessler et al., 2010; Stevens et al., 2018), but also extend the literature, as most studies focus on the health impacts of *either* racial discrimination (Carter et al., 2018; Priest & Williams, 2017) or ACEs (Dube et al., 2003; Dube et al., 2006; Williamson et al., 2002), but rarely on both.

In terms of other sociodemographic factors, females and sexual minorities were at greater risk for ACEs and reported greater depressive symptoms, which aligns with prior research (Borgogna, McDermott, Aita, & Kridel, 2018; Joshua M Smyth, Hockemeyer, Heron, Wonderlich, & Penedaker, 2008) and with minority stress theory (Meyer, 2003; Meyer & Frost, 2013) which impacts both females (Smyth et al., 2008) and sexual minorities (Borgogna et al., 2018). Lower parental education, as well as attending public or technical colleges (versus private schools), also predicted risk for ACEs, which is consistent with prior research (Lee & Chen, 2017). This may be particularly relevant to racial/ethnic minority experiences, as enduring discrimination increases the likelihood of being exposed to social and economic disadvantage (Darity, 2005; Lee & Chen, 2017).

This research has implications for future research and practice. Depression among college students is a risk factor for suicidal ideation, poor academic performance, and college dropout (Wilson et al., 2014). Racial discrimination among racial/ethnic minority students can also negatively impact these students' academic performance (Stevens et al., 2018). Due to these negative implications, it is imperative that colleges/universities provide support services to minority students (e.g., mentorship, free counseling, community outreach) to create spaces of support for students and foster diverse and inclusive campus climates (Stevens et al., 2018). Research has shown that for Black students, attending an HBCU can lead to more positive adjustments to their school environment (Cokley, 1999), which may be attributed to African-centered insights linking history and culture highly present in HBCUs (Cokley, 1999). Predominantly white institutions could learn from this approach to support all minority students. It is also critical to note that the denial or minimization of racism by university faculty and staff may create additional stressors on students who have limited outlets to express their experiences (Stevens et al., 2018).

Limitations

Although our study generated important findings, some limitations should be noted. First, while the sampling frame included diverse colleges and universities and diverse racial/ethnic group composition, all schools were selected from Georgia. Additionally, our study sample included a higher proportion of women and low representation of sexual minorities. Thus, the generalizability of these findings across other universities, colleges, and other institutions in the United States is limited and unknown. Moreover, the data are cross-sectional and provide no basis for causal directionality. Lastly, assessments of ACEs and racial discrimination were limited. The ACE assessment measure relied on retrospective reporting of sensitive, traumatic events that occurred prior to 18 years of age and are subject to potential systematic confounds (e.g., forgetting, distortion, social desirability bias). The racial discrimination measure is limited in its assessment of impact of such experiences. Additionally, all survey measures relied on self-report and might have been influenced by reporter bias. Despite these limitations, the findings provide strong evidence for associations between ACEs and racial discrimination, as well as the collective impact of these stressors on depression outcomes in college students.

Conclusions

The negative impact of ACEs and racial discrimination on depressive outcomes have been widely studied and acknowledged. However, the associations of ACEs and racial discrimination on depression have been studied separately but not together. This study contributes to the body of literature surrounding racial discrimination, depressive symptoms, and experiencing ACEs in college students. Because colleges can serve as an important intervention point (Merians, Baker, Frazier, & Lust, 2019), our findings can help inform interventions that target racial/ethnic minority students on college campuses to provide additional assistance to students who have experienced ACEs and have or are currently experiencing racial discrimination. Moreover, our findings support the need for partnerships between different colleges and universities to better address ACEs and racial discrimination, and the relationship between them and depression in racial and ethnic minority students.

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Table 1.

Participant Characteristics and Bivariate Analyses Regarding ACE Scores, Experiences of Discrimination, and Depressive Symptoms

Variable	All participants N=2,865	ACE Scores		Experiences of Discrimination				Depressive Symptoms	
		M (SD) or r	p	No report N=1,602	Occasional N=672	At least sometimes N=411	p	M (SD) or r	p
<i>Sociodemographics</i>									
Age (M, SD)	20.51 (1.94)	.05	<.001	20.42 (1.93)	20.64 (2.01)	20.61 (1.85)	.026	-.07	.001
Sex (N, %)			<.001				<.001		<.001
Male	970 (36.1)	1.04 (1.68)		625 (39.0)	242 (36.0)	103 (25.1)		4.77 (5.41)	
Female	1715 (63.9)	1.45 (1.87)		977 (61.0)	430 (64.0)	308 (74.9)		5.69 (5.82)	
Sexual Orientation (N, %)			<.001				.005		<.001
Heterosexual	2442 (91.8)	1.22 (1.74)		1449 (91.4)	631 (94.5)	362 (89.2)		5.22 (5.64)	
Other	218 (8.2)	2.28 (2.34)		137 (8.6)	37 (5.5)	44 (10.8)		6.83 (6.15)	
Race (N, %)			<.001				<.001		.031
White	1734 (65.5)	1.23 (1.77)		1307 (82.1)	312 (47.7)	115 (28.5)		5.34 (5.62)	
Black	581 (21.9)	1.59 (1.94)		169 (10.6)	205 (31.3)	207 (51.4)		4.95 (5.60)	
Asian	183 (6.9)	0.59 (1.34)		62 (33.9)	79 (43.2)	42 (23.0)		5.55 (5.96)	
Other	151 (5.7)	1.69 (1.99)		54 (3.4)	58 (8.9)	39 (9.7)		6.48 (5.79)	
Ethnicity (N, %)			<.001				<.001		.017
Non-Hispanic	2462 (92.2)	1.26 (1.78)		1511 (94.8)	594 (88.9)	357 (87.7)		5.29 (5.62)	
Hispanic	207 (7.8)	1.71 (2.00)		83 (5.2)	74 (11.1)	50 (12.3)		6.28 (6.56)	
Parental Education (N, %)			<.001				<.001		.019
< Bachelors	1223 (46.1)	1.70 (1.99)		636 (40.2)	335 (50.3)	252 (62.2)		5.66 (5.91)	
Bachelors	1431 (53.9)	0.94 (1.54)		947 (59.8)	331 (49.7)	153 (37.8)		5.13 (5.53)	
School Type (N, %)			<.001				<.001		.001
Private	1179 (43.9)	0.97 (1.58)		789 (49.3)	269 (40.0)	121 (29.4)		5.13 (5.35)	
Public	753 (28.0)	1.44 (1.89)		452 (28.2)	185 (27.5)	116 (28.2)		6.05 (6.25)	
Technical college	461 (17.2)	1.69 (2.08)		269 (16.8)	116 (17.3)	76 (18.5)		5.24 (5.68)	
HBCU	292 (10.9)	1.58 (1.80)		92 (5.7)	102 (15.2)	98 (23.8)		4.68 (5.42)	
Rural/urban (N, %)			.129				.001		.641

Variable	All participants N=2,865	ACE Scores		Experiences of Discrimination			Depressive Symptoms		
		M (SD) or r	p	No report N=1,602	Occasional N=672	At least sometimes N=411	p	M (SD) or r	p
Rural	1417 (52.8)	1.35 (1.87)		814 (50.8)	351 (52.2)	252 (61.3)		5.31 (5.76)	
Urban	1268 (47.2)	1.25 (1.76)		788 (49.2)	321 (47.8)	159 (38.7)		5.41 (5.64)	
<i>Psychosocial Factors, M (SD)</i>									
ACEs	1.25 (1.75)	--	--	1.03 (1.59)	1.45 (1.88)	1.85 (1.96)	<.001		
Experiences of discrimination	1.56 (0.74)	0.17	<.001	--	--	--	--		
Depressive symptoms	5.36 (5.69)	0.18	<.001	4.83 (5.51)	5.69 (5.45)	6.88 (6.45)	<.001	--	--

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Table 2. Multivariable Regression Examining Correlates of ACEs, Experiences of Discrimination, and Depressive Symptoms

Variable	ACEs			Experiences of Discrimination			Depressive Symptoms		
	B	CI	P	OR	CI	P	B	CI	P
Age	0.05	(0.01, 0.08)	.010	0.02	(-0.02, 0.07)	.304	-0.20	(-0.32, -0.08)	.001
Sex									
Male	Ref	--	--	Ref	--	--	Ref	--	--
Female	0.23	(0.08, 0.37)	.002	0.15	(0.04, 0.34)	.123	0.80	(0.32, 1.29)	.001
Sexual Orientation									
Heterosexual	Ref	--	--	Ref	--	--	Ref	--	--
Other	0.90	(0.66, 1.14)	<.001	-0.36	(-0.69, -0.04)	.030	1.13	(0.30, 1.95)	.007
Race									
White	Ref	--	--	Ref	--	--	Ref	--	--
Black	0.06	(-0.15, 0.28)	.553	2.06	(1.79, 2.33)	<.001	-1.35	(-2.13, -0.57)	.001
Asian	-0.36	(-0.64, -0.08)	.013	1.94	(1.61, 2.28)	<.001	0.30	(-0.66, 1.26)	.539
Other	0.23	(-0.07, 0.53)	.132	1.15	(0.79, 1.52)	<.001	0.16	(-0.88, 1.21)	.761
Hispanic	0.31	(0.05, 0.57)	.019	0.94	(0.62, 1.26)	<.001	-0.07	(-0.96, 0.83)	.886
Parental Education									
< Bachelors	Ref	--	--	Ref	--	--	Ref	--	--
Bachelors	-0.54	(-0.69, -0.40)	<.001	-0.17	(-0.36, 0.03)	.089	-0.08	(-0.58, 0.42)	.757
School Type									
Private	Ref	--	--	Ref	--	--	Ref	--	--
Public	0.31	(0.14, 0.48)	<.001	0.22	(0.00, 0.45)	.054	0.82	(0.25, 1.39)	.005
Technical college	0.31	(0.10, 0.52)	.004	0.17	(-0.11, 0.45)	.234	0.02	(-0.71, 0.75)	.961
HBCU	0.14	(-0.15, 0.43)	.353	0.01	(-0.35, 0.37)	.970	-0.50	(-1.53, 0.53)	.340
Rural/urban									
Rural	Ref	--	--	Ref	--	--	Ref	--	--
Urban	0.04	(-0.12, 0.19)	.640	0.05	(-0.15, 0.25)	.636	0.30	(-0.22, 0.82)	.252
Psychosocial Factors									
ACEs	--	--	--	0.19	(0.14, 0.24)	<.001	0.49	(0.36, 0.63)	<.001
Experiences of discrimination	--	--	--	--	--	--	1.13	(0.79, 1.48)	<.001

Variable	ACEs			Experiences of Discrimination			Depressive Symptoms		
	B	CI	P	OR	CI	P	B	CI	P
R-Square *		.080			.257			.065	

* Adjusted R-Square reported for ACEs and depressive symptoms (linear regression); Nagelkerke R-Square reported for experiences of discrimination (ordinal logistic regression).

Notes: Adding ACE scores to the model predicting experiences of discrimination increased the Nagelkerke R-Square from .236 to .257 (p<.001).

Adding ACE scores and experiences of discrimination to the model predicting depressive symptoms increased the Adjusted R-Square from .023 to .065 (p<.001).