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Trajectories of Racial Discrimination that Predict Problematic Alcohol Use among African American Emerging Adults

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Abstract

The association between racial discrimination (discrimination) and problematic alcohol use in African American (AA) emerging adults is well documented. Few researchers, however, have studied the longitudinal relationship between discrimination and problematic alcohol use among AA male and female emerging adults. In a sample of 681 AAs aged 19–25 (51% male), we explored multiple, distinct trajectories of discrimination and socio-demographic predictors of the trajectory classifications. We also examined the relation between discrimination trajectories and problematic alcohol use and the extent to which sex modified these associations. Collectively, the findings revealed that three trajectories – high-stable, low-rising, and low-declining – characterized discrimination experiences for AA emerging adults. Males in the high-stable trajectory class reported more problematic alcohol use than males in other trajectory classes and all females. These findings lay the foundation for future research that examines gender-specific mechanisms in the discrimination-health link.

Keywords

discrimination; health behavior; alcohol use; stress; gender

Racial discrimination (discrimination) has been recognized as a risk factor for *problematic alcohol use* (i.e., frequency and pattern of alcohol use that entails negative physical, social, and psychological consequences; Gorka, Ali, & Duaghters, 2012) in African American (AA) emerging adulthoods (Gerrard et al., 2012; Hurd, Varner, Caldwell, & Zimmerman, 2014; Stevens-Watkins & Rostosky, 2010; Stock, Gibbons, Walsh, & Gerrard, 2011; Stock et al., 2013; Wade & Peralta, 2016). Although researchers have consistently found that AA adolescents consume less alcohol than their white peers (Bachman, Wadsworth, O'Malley, Johnston, & Schulenberg, 2013), researchers have also found that AA emerging adults

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exceed their white counterparts in rates of alcohol-related problems (Clark, Corneille, & Coman, 2013). Despite these interesting findings, researchers conducting longitudinal studies have failed to account for heterogeneity in the experience of discrimination over time. Furthermore, researchers studying emerging adults have found mixed results when considering sex differences in vulnerability to problematic alcohol use as a function of discrimination (Boynton, O'Hara, Covault, Scott, & Tennan, 2014; Hurd et al., 2014; Martin, Tuch, & Roman, 2003). In an effort to understand these gaps in the literature, we investigated whether sex may moderate the longitudinal link between trajectories of discrimination and problematic alcohol use in a sample of AA emerging adults.

Our study builds upon prior research on discrimination and problematic alcohol use in three key ways. First, researchers who have conducted longitudinal studies have assumed that discrimination experiences underlie a single trajectory for all AAs, in spite of evidence pointing to significant heterogeneity in the experience of discrimination over time (e.g., Hurd et al., 2014). Drawing from the growth mixture modeling (GMM) framework (Muthén & Shedden, 1999), we explored distinct developmental patterns of discrimination experiences during AA emerging adulthood and examined sociodemographic factors (i.e., sex, educational attainment, employment) associated with trajectory membership. Second, we examined whether the frequency of problematic alcohol use differed across the discrimination trajectories. In particular, we examined whether higher trajectories of discrimination would evince higher levels of problematic alcohol use than lower trajectories. Third, we examined if the longitudinal relationship between discrimination and problematic alcohol use differed by sex.

Racial Discrimination during Emerging Adulthood

Racial discrimination, broadly defined as "…beliefs, attitudes, institutional arrangements, and acts that tend to denigrate individuals or groups because of phenotypic characteristics or ethnic group affiliation" (Clark, Anderson, Clark, & Williams, 1999, p. 805), is a salient and pervasive experience in the lives of AAs (Lewis, Cogburn, & Williams, 2015). Gibbons and colleagues (2012), for example, reported that nearly 90% of AA emerging adults self-report at least one discrimination experience per year, while over 50% report *more than occasional* discrimination encounters in a given year. Developmental scholars have pointed out that discrimination occurs with greater frequency during emerging adulthood (Hughes et al., 2006; Neblett, Bernard, & Banks, 2016). Specifically, as AAs transition into adulthood and begin to depart from their familial context, they occupy various social spaces (e.g., employment, higher education) and may become vulnerable to more discriminatory encounters (Arnett & Brody, 2008). In an employment audit study, researchers found that job applicants with AA-sounding names (e.g., Lakisha, Jamal) were less likely to receive a callback for an interview relative to applicants with White-sounding names (e.g., Emily, Greg) despite having identical resumes (Bertrand & Mullainathan, 2004). Audit studies have also provided evidence of the persistent racial inequality in housing, employment, credit, and consumer markets (Pager & Shepherd, 2008). As suggested by these studies, AA emerging adults may perceive an increase in discrimination as they begin to interact with social and institutional structures (e.g., higher education) that may give negative treatment based on race (Williams & Mohammed, 2013).

Racial Discrimination and Problematic Alcohol Use

Scholars often have used Lazarus and Folkman's (1984) stress, appraisal, and coping framework (Lazarus & Folkman, 1984) to understand the discrimination-and problematic alcohol use link. Emerging adulthood has been characterized as a developmental period replete with countless, stressful transitions (e.g., changes in career, residence, relationships status; Arnett, 2007). For AAs, emerging adulthood is a life stage when they also begin to contend with discrimination-related stressors within multiple social and institutional domains (e.g., not being hired because of race; Pager & Shepherd, 2008). The culmination of these stressors can generate greater vulnerabilities to substance use problems by taxing and depleting adaptive coping resources and, in turn, increasing the likelihood of using maladaptive coping strategies such as problematic alcohol use. To this end, studies of addiction have pointed out that certain substances, such as alcohol, may be abused to mitigate feelings of stress and strong, negative emotions (Crum et al., 2013; Jackson, Knight, & Rafferty, 2010).

Consistent with this theoretical framing, researchers have documented that discrimination is deleterious to the health and well-being of AA emerging adults (Lewis et al., 2015). Specifically, scholars have indicated that perceptions of race-related discrimination increases the likelihood of alcohol use and alcohol-related problems among AAs (Borrell et al., 2010; Gibbons et al., 2012; Hurd et al., 2014; Martin et al., 2003). In a study by Hurd and colleagues (2014), higher levels of perceived discrimination contributed to steeper escalations in the rate of alcohol, marijuana, and cigarette use among AA emerging adults. Of note, in Hurd and Colleagues' study (2014), a single trajectory of discrimination was examined (i.e., an intercept-only model) to predict the frequency of alcohol and cigarette use, whereas in our study, we examined multiple, distinct discrimination trajectories on problematic alcohol use. Stock and colleagues (2011) also found in a sample of AA college students that envisioning discriminatory scenarios increased their willingness to use substances, get high, and buy substances to use later. Notably, researchers have identified emerging adulthood as the stage of life in which AAs begin to equal and surpass their white counterparts in alcohol use (Doherty, Green, Reisinger, & Ensminger, 2008). They also begin to have heavier alcohol use and greater alcohol-related problems, which often persist throughout life (Zapolski, Pedersen, McCarthy, & Smith, 2014).

Discrimination, Sex, and Problematic Alcohol Use

While few researchers have examined the extent to which socio-demographic factors shape African Americans' experiences of discrimination during emerging adulthood, scholars have found that the relationship between discrimination and problematic alcohol use varies by sex (Brodish et al., 2011; Wiehe, Aalsma, Liu, & Fortenberry, 2010). For example, in a sample of AA college students, O'hara and colleagues (2015) found that AA males were more likely to drink in response to discrimination and stress than their female counterparts. Furthermore, scholars have asserted that AA males and females are socialized differently with respect to coping (Compas et al., 2001). For instance, AA males are socialized to manage stress by suppressing negative emotions or externalizing distress (Hammond, 2012; Jackson, Knight, & Rafferty, 2010), whereas AA females are socialized to engage in adaptive coping

strategies such as seeking social support (Danoff-Burg, Prelow, & Sweson, 2004). Despite these sex differences in coping, researchers have reported mixed findings regarding the moderating effects of sex on the link between discrimination and the frequency of alcohol consumption (e.g., Gerrard et al., 2012; Hurd et al., 2014). For instance, Hurd and colleagues (2014) found that AA males and females were equally susceptible to using alcohol to cope with discrimination-related experiences, suggesting that alcohol use as a coping mechanism may be normative during emerging adulthood. Yet, they have not examined whether sex differences exist in the relation between discrimination and problematic alcohol use (e.g., not meeting expectations due to drinking). The hypothesis that sex may condition the longitudinal link between discrimination and problematic alcohol use during emerging adulthood has not been directly tested. We might surmise that because AA males are more likely to use avoidant coping strategies to manage stress (e.g., emotional suppression) than AA females, when faced with discrimination stress, the likelihood of problematic alcohol use will be greater for AA males than AA females.

Limitations in Previous Research

Two major shortcomings of prior studies limit our understanding of the link between discrimination and problematic alcohol use. The first is the conceptualization of discrimination as a uniform experience. Although developmental theories and empirical results suggest high rates of discrimination during emerging adulthood, researchers have reported that that these experiences may ebb and flow for some emerging adults (Brown & Bigler, 2005; Smith-Bynum, Lambert, English, & Ialongo, 2014). For example, AA adolescents who define their identity with regard to race (i.e., racial centrality) may also report consistently high perceptions of discrimination during emerging adulthood (Sellers & Shelton, 2003). In contrast, some AA emerging adults may perceive less, or consistently low levels of discrimination over time (Smith-Bynum et al., 2014). These studies suggest that the course of discrimination experiences may vary. Although Hurd and colleagues' (2014) findings support the notion that significant variability exists in the trajectory of discrimination experience, researchers have not examined the specific longitudinal patterns of change among AA emerging adults.

Second, while we have evidence to suggest that sex plays a role in the discrimination-problematic alcohol use link, less is known about the role of sex and other socio-demographic factors and racial discrimination experiences *over time.* Although researchers have suggested that discrimination experiences are more prevalent in higher education, labor markets, and other non-familial, predominantly-White spaces (e.g., predominantly white colleges; Neblett & Carter, 2012), only a few researchers have considered whether socio-demographic factors (e.g., college student, females) shape discriminatory experiences during emerging adulthood for AAs. In the case of sex, as AA adolescent males develop into emerging adults, males are often characterized as more threatening and aggressive, which may have the potential to lead to more discrimination encounters than females would encounter (Williams & Mohammed, 2009). Thus, the deleterious effects of discriminatory experiences in emerging adulthood for AAs over time are not well understood.

Overview of the Current Study

We explored the potential for multiple, distinct trajectories of discrimination experience during emerging adulthood for AAs, sociodemographic correlates of these experiences, and the role of sex in the link between trajectories of discrimination experiences and problematic alcohol use over time. We expected that a large proportion of AA emerging adulthoods would classify into a trajectory that reflects consistent and moderate (i.e., once a month) exposure to discrimination (Hurd et al., 2014; Seaton, Caldwell, Sellers, & Jackson, 2008, 2008). Yet, we hypothesized that multiple, distinct trajectories would emerge because heterogeneity in the continuity and change of discrimination during emerging adulthood have been documented (Hurd et al., 2014). Furthermore, as emerging adulthood reflects diverse socio-demographic backgrounds (Arnett, 2007), we explored if sex, employment status, and educational attainment would predict classification into a specific latent trajectory class. We also hypothesized that identifying as a male, being employed, and having more education would increase risk for classifying into an elevated or elevating trajectory of discrimination experience as suggested by Pager and Shepherd (2008).

A second aim of this study was to examine whether the rate of problematic alcohol use differed between the latent class trajectories of discrimination. Consistent with others who have found positive associations between discrimination and problematic alcohol use (e.g., Gibbons et al., 2012), we hypothesized that trajectories with higher levels of discrimination over time would evince higher rates of problematic alcohol use over time as well (by age 25). Lastly, we examined whether sex modifies the relationship between discrimination and problematic alcohol use. Given that researchers have found AA males are more likely to suppress strong emotions than their female counterparts (Hammond, 2012) and use substances to cope with stress (O'Hara et al., 2015), we hypothesized that males reporting consistently high experiences of discrimination would report more problematic alcohol use than females in any group.

Method

Participants

Participants included 681 AA emerging adults (51% female) ranging from ages 19 to 25. The data are from waves 6 (2001–2002; M_{age} = 20.98, SD_{age} = 0.64), 7 (2002–2003; M_{age} = 22.07, SD_{age} = 0.67), and 8 (2003–2004; M_{age} = 23.06, SD_{age} = 0.68) of a longitudinal study examining the effects of substance use and drug use on educational achievement, employment, and other health-related indicators such as psychological well-being (see Zimmerman & Schmeelk-Cone, 2003). Data between waves 6 to 7, and 7 to 8 were collected approximately one year apart. The original sample consisted of 850 ninth graders (92% response rate) from four main public high schools in an economically disadvantaged city in the Midwest. All participants in the original study were identified as at risk for school dropout due to a GPA of 3.0 or lower at the end of eighth grade. Only students who were not diagnosed as emotionally or developmentally impaired were eligible to participate. Data were collected annually from 850 adolescents who met the eligibility criteria during their first year of high school (979 initial contacts; refusal rate = 13.2%). The sample was 50%

female, and predominantly African American (African American = 681 (80.1%); White = 143 (16.8%); White and Black = 26 (3.1%); other = 0).

Procedures

Trained interviewers conducted annual interviews with the participants at school or in the community setting. Following the interviews, participants were asked to complete a paper-and-pencil questionnaire that included items about the participant's socio-demographic background, racial discrimination experiences, alcohol use, and other sensitive topics. The university institutional review board has approved all study protocols.

Measures

Table 1 reports the mean and standard deviation for all study variables.

Sociodemographics.—The socio-demographic variables examined in the study included sex, educational attainment, and employment status (see Table 1). The participant's sex, educational attainment, employment status were assessed at Wave 6. For educational attainment, participant responses were categorized into three groups: did not graduate high school, graduated high school, and attending/completed college or more education. Employment status was coded as *no* if the participant indicated that they were "unemployed," or *yes* if they indicated that they worked "full-time" or "part-time."

Perceived Racial Discrimination.—Perceived interpersonal racial discrimination was measured using the 20-item Daily Life Experience scale (DLE; Harrell, 1997) across Waves 6 to 8. The DLE measures the frequency of racial hassle experiences during the past 12 months on a Likert-type scale ranging from 0 (*never happened to me*) to 5 (*once a week or more*), and the participants' scores on the DLE were averaged. Prior studies have reported that the DLE demonstrates reliable and valid psychometric properties with African American young adults (e.g., Neblett and Carter, 2012). Sample items include "Because of your race, your ideas were minimized, ignored, or devalued," and "Because of your race, you were accused of something or treated suspiciously." The DLE scale demonstrated good reliability in the study sample in all three waves of data (i.e., $\alpha_{wave6} = .94$, $\alpha_{wave7} = .95$, $\alpha_{wave8} = .95$).

Problematic Alcohol Use.—On a 7-item scale, participants reported the frequency of their alcohol consumption in the past 30 days (Johnston, O'Malley, & Bachman, 1982). They also reported six problems from drinking alcohol: "I have gotten into trouble because of my drinking," "My family and friends have been worried and complained about my drinking," "How often do you drink enough to feel pretty high," "I've been sick and vomited after drinking," "My physical health has been harmed by my drinking," and "While drinking or intoxicated, I have been physically hurt, injured, or burned (Miller, Tonigan, & Longabaugh, 1995)." Participants responded on a Likert-type scale of 0 (*Never*) to 3 (*Almost Always/Everyday*), and averaged scores were used for analysis (i.e., ranging from 0 to 3). This scale demonstrated satisfactory reliability ($\alpha = .70$).

Analytic Approach

All statistical analyses, with exception to handling missing data, were conducted using Mplus 7.2 (Muthén & Muthén, 2012). As a preliminary step to the main study analyses, descriptive statistics, correlations, and the distribution of the study variables were examined.

As a precursor to examining the first aim of the study, we fit an unconditional Latent Growth Model (LGM) of discrimination to assess person-level variation in the intercept and slope (see Jung & Wickrama, 2008). To determine good model fit, we assessed whether the Root Mean Square Error of Approximation was less than .08 (RMSEA; Steiger & Lind, 1980), Comparative Fit Index was great than .90 (CFI; Bentler, 1990), and a Standardized Room Mean Square Residual of less than .05 (SRMR; Chen, 2007). Next, we examined distinct growth trajectories of discrimination using GMMs (Muthén & Shedden, 1999). To obtain a finite number of latent class trajectories of discrimination, the following model fit indices were examined: Akaike information criterion (AIC; Akaike, 1974), bayesian information criterion (BIC; Schwarz, 1978), sample adjusted bayesian information criterion (Tofighi & Enders, 2007). As the number of classes increased, reduction in AIC, BIC, and aBIC indicated an improvement in model fit. We also conducted Vuong-Lo-Mendell-Rubin likelihood ratio tests (VLMR LRT; Lo, Mendell, & Rubin, 2001), Lo-Mendell-Rubin Adjusted Likelihood Ratio tests (LMR LRT; Lo et al., 2001), and Bootstrap Likelihood Ratio Test (B-LRT; Feng & McCulloch, 1996) to examine significant improvement in model fit between the n versus $n - 1$ trajectory models. Specifically, a non-significant difference would suggest that n-1 class solution is preferred. After selecting the number of latent trajectory classes, we used posterior probabilities to classify participants into latent trajectory classes of discrimination. Further, we employed the R3STEP method to conduct a multinomial regression that examined whether sex, educational attainment, and employment status predicted classification into one of latent trajectory classes.

For the second aim of the study, we used the Bolck, Croon, and Hagenaars (BCH; Bolck, Croon, Hagenaars, 2004) method to assess differences in problematic alcohol use between the latent trajectory classes of discrimination. We compared distal outcomes across classes, by using weighted multiple group analysis in which the subgroups correspond to latent classes (see Asparouhov & Muthén, 2014). We also conducted Wald tests to examine mean differences in problematic alcohol use across classes, after taking into account the effect of predictors (i.e., the significant socio-demographic factors from aim 1). To address the third study aim, we modified the BCH-derived means of the problematic alcohol use in each class by sex, to examine whether the rates of problematic alcohol use varied between AA males and females within the trajectory classes. As precursor to this aim, we first assessed whether including sex as a within-class predictor improved model fit relative to the BCH model from Aim 2. That is, if the change in BIC was 10 units or lower in the BCH model from Aim 2 to Aim 3 (Burnham & Anderson, 1998; Raftery, 1995; Wasserman 2000), this suggested that modeling sex difference would better represent the data. Within-class regression parameters of sex were used to assess within-class sex differences on problematic alcohol use, while Wald tests were conducted to examine variations in problematic alcohol use between AA males and females across the trajectory classes. Further, if the within-class effect of sex was

not significant in a trajectory class, problematic alcohol use among AA males and females was equal.

Missing Data.—Expectation Maximization (EM) imputation was conducted in SPSS (version 24) to handle missing data. Although Full Information Maximum Likelihood (FIML) is available to handle missing data for the unconditional LGM and GMMs, EM imputation was desirable for two reasons. First, list-wise deletion is the only treatment to missing data when using the BCH method (Asparouhov & Muthén, 2014). Therefore, only 208 of 681 participants (~33% of the sample) were retained due to missing data in the independent (e.g., high school graduation) and dependent (i.e., problematic alcohol use) variables. Second, due to list-wise deletion, latent trajectory classes (i.e., number of classes, entropy, effect sizes) derived in the GMMs (n = 584) may not be valid when using the BCH approach (n = 208). Lastly, with approximately 66% of the cases dropped, the power to detect true findings is substantially diminished. Thus, EM imputation would allow us to maximize the use of collected data.

EM imputation is a deterministic iterative algorithm that estimates the mean, covariance matrix, and inter-correlations between variables with missing data. We assumed that our data followed a multivariate normal distribution. Each iteration consisted of two steps. In the first step (E-step), the conditional expectation of the missing data is estimated with respect to the distribution of the missing data conditioned on the observed data and the parameters estimated at the previous iteration. In the second step (M-step), maximum likelihood estimates are computed as if the missing data has been filled in. The iterations are repeated until convergence is reached (Ghomrawi, Mandl, Rutledge, Alexiades, & Mazumdar, 2011). Of note, we have included our non-imputed results as an electronic resource.

Results

Preliminary Analyses

Descriptive statistics for the study variables are reported in Table 1. Bivariate associations were generally small with adjacent waves of reported discrimination having the highest correlations (r = .48 and .59). Problematic alcohol use was associated with reported discrimination at each wave included in the analyses.

Aim 1. Heterogeneous trajectories of discrimination and socio-demographic predictors.

Prior to examining the heterogeneous trajectories of discrimination, we conducted an unconditional LGM to assess variability in the intercept and slope of the discrimination trajectory. The unconditional LGM fit the data well (i.e., RMSEA = .01, CFI = 1.00, and SRMR = .03) and suggested that, on average, participants report less discrimination over time (i.e., $M_{\text{intercept}}$ = .78, M_{slope} = −.02). The random effects results indicated heterogeneity in the intercept and slope factors (i.e., $\sigma_{intercept}$ = 0.35, σ_{slope} = 0.10).

Class Structure.—Candidate model results with varying class structures are reported in Table 2. Decision criteria were generally in agreement as to the best fitting model, though the AIC and BIC measures differed for the 3- and 4-class solutions. Although the B-LRT

suggested that the model fit of the 4-class solution was significantly better than the model fit for the 3-class solution, the VLMR LRT and the LMR Adjusted LRT indicated that the 4-class model did not fit the data sufficiently better than the more parsimonious 3-class solution. In addition, at least one class in the 4-class solution had fewer than 2% of participants. Given the empirical results (i.e., BIC, VLMR LRT, and LMR aLRT) along with substantive interpretation, we elected to adopt the more parsimonious 3-class solution moving forward (see Figure 1).

The largest class ("High/Stable") represented 48.31% of the sample (n = 329) and was characterized by the highest levels of reported discrimination at Wave 6 (~age 20; $\boldsymbol{\pi}_0$ = 1.09, *s.e.* = 0.06) and no change over time. The next largest class containing 36.71% of participants ("Low/Rising"; n = 250) reported lower initial levels of discrimination relative to High/Stable participants ($\boldsymbol{\pi}_0$ = 0.51, *s.e.* = 0.02), but also increasing levels of discrimination over time ($\boldsymbol{\pi}_1$ = 0.05, *s.e.* = 0.01). The final class ("Low/Declining") had the fewest number of participants (n = 102; 14.98%) and reported the lowest levels of discrimination at age 20 ($\boldsymbol{\pi}_0$ = 0.28, *s.e.* = 0.03) as well as slightly declining levels of discrimination over time ($\boldsymbol{\pi}_1$ = −0.12, *s.e.* = 0.01).

Predictors of Class Membership.—Table 4 contains multinomial regression results testing whether participant sex, educational attainment, and employment status predicted classification into one of the latent trajectory classes. Relative to the Low/Declining class, male participants were more likely to be in the High/Stable and Low/Rising class. Additionally, participants enrolled in college were *more* likely to be classified in the Low/Rising class than the Low/Declining class. No other covariates were associated with class membership.

Aim 2. Differences in Problematic Alcohol Use Between Discrimination Trajectory Classes

Differences in problematic alcohol use by discrimination trajectory class are reported in Table 5. High/Stable group members reported highest overall levels of problematic alcohol use (M = 0.55, *s.e.* = 0.10), followed by Low/Declining group members (M = 0.44, *s.e.* = 0.10) and those in the Low/Rising class (M = 0.47, *s.e.* = 0.10). Wald's chi-square difference test revealed a significant difference in problematic alcohol use between the High/Stable and Low/Declining classes ($\chi^2(1) = 3.88$, p = .05), as well as the High/Stable and Low/Rising classes ($\chi^2(1) = 5.27$, p = .02). Mean comparisons between Low/Declining and the Low/Rising and High/Stable groups were not significantly different.

Aim 3. Discrimination Class and Sex Differences in Problematic Alcohol Use

Building upon the BCH model from Aim 2, sex was included as a between- and within-class predictor in the model to examine differences in problematic alcohol use across the discrimination classes by sex (see Table 6). As an initial step, we assessed whether including sex a within-class predictor improved model fit compared to the BCH model from Aim 2. The BIC in the BCH model with the added within-class sex effect was lower than the BCH model in Aim 2 ($\Delta BIC_{Aim3\text{-}Aim2}$ = −11), suggesting that adding within-class sex differences to the model better reflects the sample (Burnham & Anderson, 1998; Raftery, 1995; Wasserman 2000). Males in the High/Stable class reported higher problematic alcohol use at

age 21.94 than both males in the Low/Declining and Low/Rising classes, as well as females in *any* discrimination class. In addition, males and females in the low-rising class reported higher rates of problematic alcohol use than males and females in the low-declining class. No other within or between class sex differences in problematic alcohol use reached significance.

Discussion

Charting multiple trajectories of discrimination experiences can be useful when seeking to understand problematic alcohol use during emerging adulthood for AA males and females. Consistent with the stress, appraisal, and coping framework (Lazarus & Folkman, 1984), frequent exposure to interpersonal discrimination over time was associated with more problematic alcohol use during emerging adulthood. Furthermore, our findings provide support for sex-specific coping patterns (e.g., Cooper, Russell, Skinner, Frone, & Mudar., 1992) as AA males were more likely than females to use alcohol in problematic ways when contending with discrimination.

In our study, three developmental patterns (i.e., high-stable, low-rising, and low-declining) best characterized discrimination experience in the lives of AA emerging adults. These results highlight the importance of examining how discrimination experiences unfold over time during this life stage. Consistent with our hypothesis, our findings revealed that males were more vulnerable to experiencing consistently high levels of discrimination (e.g., Seaton et al., 2008). Not surprisingly, scholars have reported that AA males often perceive more discrimination than females due to gendered stereotypes that portray AA males as more threatening (Williams & Mohammed, 2009). Contrary to our hypothesis, participants who were enrolled in college were more vulnerable to experiencing a rising level of discrimination. One explanation for this finding is that AA college students in racially mixed or predominantly White institutions are more likely to be exposed to interpersonal discrimination (e.g., microaggressions, being called a racial epithet) and institutional (e.g., unfair admissions processes) discrimination (Chao, Mallinckrodt, & Wei, 2012). Therefore, it is conceptually reasonable to believe that AA college students are acutely aware of the negative influence discrimination has on academic achievement (e.g., imposter syndrome; Bernard, Quiera, Willis, Sosoo, & Neblett, 2017), psychological well-being (e.g., anxiety symptoms; Lee, Neblett, & Jackson, 2014), and upward social mobility.

Consistent with our hypothesis and prior research (Hurd et al., 2014), the results from this study also revealed that individuals classified in the high-stable discrimination trajectory reported higher levels of problematic alcohol use than individuals in the low-rising and low-declining trajectory. Yet, it is noteworthy to mention that no other group differences were found between the low-declining and low-rising trajectories. One explanation for this finding is that AA emerging adults in the low-declining and low-rising trajectories may be contending with other types of discrimination (e.g., non-race-based, institutional) and stressors (e.g., financial, neighborhood violence) not captured in this study. As such, researchers must go beyond interpersonal discrimination by examining the influence of multiple discriminatory forms (e.g., institutional discrimination) in conjunction with other life stressors that implicate health behaviors (Jones, 1997; Williams & Mohammed, 2013).

Another possibility is that AA emerging adults may utilize a wide array of coping methods, such as religiosity, to mitigate the stressfulness of discrimination encounters (Lee et al., 2014). For this reason, to understand the mixed findings in this study, it is important that future studies take into account adaptive and maladaptive coping strategies employed by AA emerging adults.

Lastly, our findings emphasize sex differences in problematic alcohol use in the context of discrimination. Our results are consistent with Brody, Kogan, and Chen (2012) who found that AA male youth who experienced discrimination over time reported more problematic alcohol use than their female counterparts. Our findings build upon previous work by revealing that AA males who reported persistent and high levels of discrimination had the greatest vulnerability to problematic alcohol use, even when compared to other AA males and females who reported incremental increases in discrimination each year. This result suggests that scholars examining discrimination may need to consider the distinct ways by which discrimination unfolds and is experienced over time. Our results also contribute to our understanding of the association between problematic alcohol use and discrimination because the most significant effects of discrimination were for males who persistently reported high levels of discrimination. This finding suggests that AA males and females may cope differently with racism-related stress, and that AA males may be more vulnerable to problematic alcohol use in the context of racism-related stress. Consistent with research on gendered coping behaviors, scholars have reported that AA males are more likely than AA females to suppress emotions and engage in unhealthy coping behaviors such as alcohol use to dampen the stress effect of discrimination (Cooper et al., 1992; Hammond, 2012; Jackson et al., 2010). The findings, when taken together, suggests the need for future research to elucidate sex-specific coping mechanisms in the context of racism-related stress to help inform gender-tailored prevention strategies.

Limitations and Future Directions

In reviewing the results of the present study, several limitations should be noted and addressed in future research. First, although the examination of interpersonal racial discrimination is important to understanding problematic alcohol use among AAs, this measure of discrimination may underestimate the experience of discrimination (e.g., cultural racism). That is, researchers have earmarked race and non-race-based (e.g., sex, age) discrimination as salient experiences in the lives of AAs (Soto, Dawson-Andoh, & BeLue, 2011), and have noted that discrimination experiences occur across multiple levels (e.g., historical, political, institutional, family, interpersonal discrimination). Future research that measures the extent to which different foci of discrimination implicates health and mental health will help us understand the noxious effects discrimination in a more detailed fashion.

Second, the concept of race and ethnicity are often collapsed into a single homogenous category. For Blacks, the multiple ethnic groups from the African diaspora that live in the United States are often identified as African Americans with little or no regard for their cultural heritage, which has implications for who they are and the ideology of health and well-being, including risk and protective factors. Although some researchers posit similarities in racism-related experiences among Black Americans (e.g., Soto et al., 2011),

other scholars have revealed that the health consequences of discrimination can vary by ethnicity among Black Americans (e.g., Caribbean Blacks and African Americans; Seaton et al., 2008). Therefore, examining ethnicity as a moderator in the relation between discrimination and problematic alcohol use would be informative in better understanding the racial and ethnic patterning of health in the United States.

Third, although our study provides a longitudinally nuanced perspective of the link between discrimination and problematic alcohol use, the frequency of alcohol consumption and alcohol-related problems were aggregated. Given that alcohol consumption is moderately correlated with the mean of alcohol-related problems (i.e., $r = .44$), it is possible that discrimination may differentially evince rates of alcohol consumption and alcohol-related problems (e.g., interpersonal consequences of drinking problematically). Further, we do not know whether the underlying mechanisms linking discrimination to alcohol consumption is identical to the underlying mechanism linking discrimination to alcohol-related problems. For this reason, it is imperative that researchers assess and compare the influence of discrimination-related stress on alcohol consumption and alcohol-related problems separately.

Despite these limitations, this study has several strengths. First, much of the research on discrimination and problematic alcohol use has been cross-sectional or not included the transition to young adulthood. Our study is one of few to examine this relation longitudinally in emerging adulthood. Second, this study is the first of its kind to chart distinct developmental patterns of discrimination experiences among AA emerging adults. In particular, our study indicates that a single developmental trajectory of discrimination does not fully characterize the experience of discrimination over time for AA emerging adults. Third, we are among the few researchers who examined socio-demographic predictors of distinct racial discrimination trajectories. Lastly, our results underscore the importance of examining sex differences in the relation between discrimination and problematic alcohol use. The results support the notion that AA males and females contend with race-related experiences differently and future work should seek to elucidate these gender distinctions.

Conclusion

The results of our study expand on past research by examining trajectories of discrimination and sex as critical factors for understanding problematic alcohol use during emerging adulthood for AAs. AA males who experience high and stable levels of discrimination over time are the most vulnerable to problematic alcohol use than all other AA males and females. As is usually the case, however, the relations between discrimination, problematic alcohol use, and sex are much more complex. Other factors must be considered important contributors in this relation in future studies such as parent and peer alcohol use (Hawkins, Catalano, & Miller, 1992). In addition, emerging research is beginning to elucidate the underlying mechanisms that link discrimination and health behaviors (e.g., depression, lack of social support), that, in turn, offer critical leverage points for interventions that seek to promote positive development and protect health among AAs. To this end, the present study lays the foundation for further exploration of how discrimination experiences influence problematic alcohol use during emerging adulthood for AAs over time.

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References

Akaike H (1974). A new look at the statistical model identification. Automatic Control, IEEE Transactions on, 19(6), 716–723. doi:10.1109/TAC.1974.1100705

Arnett JJ (2007). Emerging adulthood: What is it, and what is it good for? Child Development Perspectives, 1(2), 68–73. doi:10.1037/0012-1649.42.5.747

Arnett JJ, & Brody GH (2008). A fraught passage: The identity challenges of African American emerging adults. Human Development, 51(5–6), 291–293. doi:10.1159/000170891

Asparouhov T, & Muthén B (2014). Auxiliary variables in mixture modeling: Using the BCH method in mplus to estimate a distal outcome model and an arbitrary secondary model. Mplus Web Notes, 21(2), 1–22. Retrieved from https://www.statmodel.com/examples/webnotes/webnote21.pdf

Bachman JG, Wadsworth KN, O'Malley PM, Johnston LD, & Schulenberg JE (2013). Smoking, drinking, and drug use in young adulthood: The impacts of new freedoms and new responsibilities. Psychology Press.

Bentler PM (1990). Comparative fit indexes in structural models. Psychological Bulletin, 107(2), 238–246. doi:10.1037/0033-2909.107.2.238 [PubMed: 2320703]

Bernard DL, Lige QM, Willis HA, Sosoo EE, & Neblett EW (2017). Impostor phenomenon and mental health: The influence of racial discrimination and gender. Journal of counseling psychology, 64(2), 155–166 doi:10.1037/cou0000197 [PubMed: 28182493]

Bertrand M, & Mullainathan S (2004). Are Emily and Greg more employable than Lakisha and Jamal? A field experiment on labor market discrimination. The American Economic Review, 94(4), 991–1013. doi:10.1257/0002828042002561

Bolck A, Croon M, & Hagenaars J (2004). Estimating latent structure models with categorical variables: One-step versus three-step estimators. Political Analysis, 12(1), 3–27. doi:10.1093/pan/mph001

Borrell LN, Roux AVD, Jacobs DR, Shea S, Jackson SA, Shrager S, & Blumenthal RS (2010). Perceived racial/ethnic discrimination, smoking and alcohol consumption in the multi-ethnic study of atherosclerosis (MESA). Preventive Medicine, 51(3), 307–312. doi:10.1016/j.ypmed.2010.05.017 [PubMed: 20609433]

Boynton MH, O'Hara RE, Covault J, Scott D, & Tennen H (2014). A mediational model of racial discrimination and alcohol-related problems among African American college students. Journal of Studies on Alcohol and Drugs, 75(2), 228–234. doi:10.15288/jsad.2014.75.228 [PubMed: 24650816]

Brodish AB, Cogburn CD, Fuller-Rowell TE, Peck S, Malanchuk O, & Eccles JS (2011). Perceived racial discrimination as a predictor of health behaviors: The moderating role of gender. Race and Social Problems, 3(3), 160–169. doi:10.1007/s12552-011-9050-6 [PubMed: 22844386]

Brody GH, Kogan SM, & Chen Y (2012). Perceived discrimination and longitudinal increases in adolescent substance use: Gender differences and mediational pathways. Journal Information, 102(5), 1006–1011. doi:10.2105/AJPH.2011.300588

Chao RCL, Mallinckrodt B, & Wei M (2012). Co-occurring presenting problems in African American college clients reporting racial discrimination distress. Professional Psychology: Research and Practice, 43(3), 199–207. doi:10.1037/a0027861

Clark R, Anderson NB, Clark VR, & Williams DR (1999). Racism as a stressor for African Americans: A biopsychosocial model. American psychologist, 54(10), 805–816. doi:10.1037/0003-066X.54.10.805

Clark TT, Corneille M, & Coman E (2013). Developmental trajectories of alcohol use among monoracial and biracial black adolescents and adults. Journal of Psychoactive Drugs, 45(3), 249–257. doi:10.1080/02791072.2013.805980 [PubMed: 24175490]

Compas BE, Connor-Smith JK, Saltzman H, Thomsen AH, & Wadsworth ME (2001). Coping with stress during childhood and adolescence: Problems, progress, and potential in theory and research. Psychological Bulletin, 127(1), 87–127. doi:10.1037/0033-2909.127.1.87 [PubMed: 11271757]

Cooper ML, Russell M, Skinner JB, Frone MR, & Mudar P (1992). Stress and alcohol use: moderating effects of gender, coping, and alcohol expectancies. Journal of abnormal psychology, 101(1), 139–152. doi:10.1037/0021-843X.101.1.139 [PubMed: 1537960]

Crum RM, Mojtabai R, Lazareck S, Bolton JM, Robinson J, Sareen J, … Alvanzo AA (2013). A prospective assessment of reports of drinking to self-medicate mood symptoms with the incidence and persistence of alcohol dependence. JAMA Psychiatry, 70(7), 718–726. doi:10.1001/jamapsychiatry.2013.1098 [PubMed: 23636710]

Danoff-Burg S, Prelow HM, & Swenson RR (2004). Hope and life satisfaction in Black college students coping with race-related stress. Journal of Black Psychology, 30(2), 208–228. doi:10.1177/0095798403260725

Doherty EE, Green KM, Reisinger HS, & Ensminger ME (2008). Long-term patterns of drug use among an urban African American cohort: The role of gender and family. Journal of Urban Health, 85(2), 250–267. doi:10.1007/s11524-007-9246-7 [PubMed: 18247122]

Feng ZD, & McCulloch CE (1996). Using bootstrap likelihood ratios in finite mixture models. Journal of the Royal Statistical Society. Series B (Methodological), 58(3), 609–617. Retrieved from http://www.jstor.org/stable/2345897

Gerrard M, Stock ML, Roberts ME, Gibbons FX, O'Hara RE, Weng C, & Wills TA (2012). Coping with racial discrimination: The role of substance use. Psychology of Addictive Behaviors, 26(3), 550–560. doi:10.1037/a0027711 [PubMed: 22545585]

Gibbons FX, O'Hara RE, Stock ML, Gerrard M, Weng C, & Wills TA (2012). The erosive effects of racism: Reduced self-control mediates the relation between perceived racial discrimination and substance use in African American adolescents. Journal of Personality and Social Psychology, 102(5), 1089. doi:10.1037/a0027404 [PubMed: 22390225]

Gorka SM, Ali B, & Daughters SB (2012). The role of distress tolerance in the relationship between depressive symptoms and problematic alcohol use. Psychology of Addictive Behaviors, 26(3), 621. doi:10.1037/a0026386 [PubMed: 22121919]

Hammond WP (2012). Taking it like a man: Masculine role norms as moderators of the racial discrimination–depressive symptoms association among African American men. American Journal of Public Health, 102(2), 232–241. doi:10.2105/AJPH.2011.300485

Hawkins JD, Catalano RF, & Miller JY (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: implications for substance abuse prevention. Psychological bulletin, 112(1), 64–105. doi:10.1037/0033-2909.112.1.64 [PubMed: 1529040]

Hughes D, Rodriguez J, Smith EP, Johnson DJ, Stevenson HC, & Spicer P (2006). Parents' ethnic-racial socialization practices: A review of research and directions for future study. Developmental Psychology, 42(5), 747–770. doi:10.1037/0012-1649.42.5.747 [PubMed: 16953684]

Hurd NM, Varner FA, Caldwell CH, & Zimmerman MA (2014). Does perceived racial discrimination predict changes in psychological distress and substance use over time? an examination among black emerging adults. Developmental Psychology, 50(7), 1910–1918. doi:10.1037/a0036438 [PubMed: 24730378]

Jackson JS, Knight KM, & Rafferty JA (2010). Race and unhealthy behaviors: chronic stress, the HPA axis, and physical and mental health disparities over the life course. American journal of public health, 100(5), 933–939. doi:10.2105/AJPH.2008.143446 [PubMed: 19846689]

Jones JM (1997). Prejudice and racism McGraw-Hill Humanities, Social Sciences & World Languages.

Lazarus RS, & Folkman S (1984). Stress, coping and adaptation.

Lee DB, Neblett EW, & Jackson V (2015). The role of optimism and religious involvement in the association between race-related stress and anxiety symptomatology. Journal of Black Psychology, 41(3), 221–246. doi:10.1177/0095798414522297

Lewis TT, Cogburn CD, & Williams DR (2015). Self-reported experiences of discrimination and health: Scientific advances, ongoing controversies, and emerging issues. Annual Review of Clinical Psychology, 11, 407–440. doi:10.1146/annurev-clinpsy-032814-112728

Lo Y, Mendell NR, & Rubin DB (2001). Testing the number of components in a normal mixture. Biometrika, 88(3), 767–778. doi:10.1093/biomet/88.3.767

Martin JK, Tuch SA, & Roman PM (2003). Problem drinking patterns among African Americans: the impacts of reports of discrimination, perceptions of prejudice, and" risky" coping strategies. Journal of health and social behavior, 408–425. Retrieved from http://www.jstor.org/stable/1519787 [PubMed: 14582316]

Miller WR, Tonigan JS, & Longabaugh R (1995). The drinker inventory of consequences (DrInC). Project MATCH monograph series, 4.

Muthén LK, & Muthén BO (2012). Mplus User's Guide. Seventh Edition. Los Angeles, CA: Muthén & Muthén.

Muthén B, & Shedden K (1999). Finite mixture modeling with mixture outcomes using the EM algorithm. Biometrics, 55(2), 463–469. doi:10.1111/j.0006-341X.1999.00463.x [PubMed: 11318201]

Neblett EW, Bernard DL, & Banks KH (2016). The moderating roles of gender and socioeconomic status in the association between racial discrimination and psychological adjustment. Cognitive and Behavioral Practice, 23(3), 385–397. doi:10.1016/j.cbpra.2016.05.002

Neblett EW, & Carter SE (2012). The protective role of racial identity and Africentric worldview in the association between racial discrimination and blood pressure. Psychosomatic medicine, 74(5), 509–516. doi:10.1097/PSY.0b013e3182583a50 [PubMed: 22685241]

O'Hara RE, Armeli S, & Tennen H (2015). College students' drinking motives and social-contextual factors: Comparing associations across levels of analysis. Psychology of Addictive Behaviors, 29(2), 77–89. doi:10.1177/0146167211420732

Pager D, & Shepherd H (2008). The sociology of discrimination: Racial discrimination in employment, housing, credit, and consumer markets. Annual Review of Sociology, 34, 181–209. Retrieved from https://www-ncbi-nlm-nih-gov.proxy.lib.umich.edu/pmc/articles/PMC2915460/

Schwarz G (1978). Estimating the dimension of a model. The Annals of Statistics, 6(2), 461–464. doi:10.1214/aos/1176344136

Seaton EK, Caldwell CH, Sellers RM, & Jackson JS (2008). The prevalence of perceived discrimination among African American and Caribbean Black youth. Developmental Psychology, 44(5), 1288. doi:10.1037/a0012747 [PubMed: 18793063]

Smith-Bynum MA, Lambert SF, English D, & Ialongo NS (2014). Associations between trajectories of perceived racial discrimination and psychological symptoms among African American adolescents. Development and psychopathology, 26(1), 1049–1065. doi: 10.1017/S0954579414000571 [PubMed: 24955844]

Soto JA, Dawson-Andoh NA, & BeLue R (2011). The relationship between perceived discrimination and generalized anxiety disorder among African Americans, Afro Caribbeans, and non-Hispanic Whites. Journal of Anxiety Disorders, 25(2), 258–265. doi:10.1016/j.janxdis.2010.09.011 [PubMed: 21041059]

Steiger JH, & Lind JC (1980, 5). Statistically-based tests for the number of common factors. Paper presented at the annual Spring meeting of the Psychometric Society, Iowa City, IA.

Stevens-Watkins D, & Rostosky S (2010). Binge drinking in African American males from adolescence to young adulthood: The protective influence of religiosity, family connectedness, and close friends' substance use. Substance use & Misuse, 45(10), 1435–1451. doi:10.3109/10826081003754765 [PubMed: 20438340]

Stock ML, Gibbons FX, Gerrard M, Houlihan AE, Weng C, Lorenz FO, & Simons RL (2013). Racial identification, racial composition, and substance use vulnerability among African American adolescents and young adults. Health Psychology, 32(3), 237–247. doi:10.1037/a0030149 [PubMed: 23088177]

Stock ML, Gibbons FX, Walsh LA, & Gerrard M (2011). Racial identification, racial discrimination, and substance use vulnerability among African American young adults. Personality & Social Psychology Bulletin, 37(10), 1349–1361. doi:10.1177/0146167211410574 [PubMed: 21628598]

Tofighi D, & Enders C (2007). Mixture models in latent variable research. In Hancock GR (Ed.), Mixture models in latent variable research (pp. 317–341). Greenwich, CT: Information Age.

Tucker LR, & Lewis C (1973). A reliability coefficient for maximum likelihood factor analysis. Psychometrika, 38(1), 1–10. doi:10.1007/BF02291170

Vermunt JK (2010). Latent class modeling with covariates: Two improved three-step approaches. Political Analysis, 18(4), 450–469. doi:10.1093/pan/mpq025

Wade J, & Peralta RL (2016). Perceived racial discrimination, heavy episodic drinking, and alcohol abstinence among African American and white college students. Journal of Ethnicity in Substance Abuse, , 1–16. doi:10.1080/15332640.2015.1113152 [PubMed: 26766298]

Wiehe SE, Aalsma MC, Liu GC, & Fortenberry JD (2010). Gender differences in the association between perceived discrimination and adolescent smoking. American Journal of Public Health, 100(3), 510–516. doi:10.2105/AJPH.2009.169771 [PubMed: 20075313]

Williams DR, & Mohammed SA (2009). Discrimination and racial disparities in health: evidence and needed research. Journal of behavioral medicine, 32(1), 20–47. doi:10.1007/s10865-008-9185-0 [PubMed: 19030981]

Williams DR, & Mohammed SA (2013). Racism and health I: Pathways and scientific evidence. American Behavioral Scientist, 1–22. doi:10.1177/0002764213487340

Zapolski TC, Pedersen SL, McCarthy DM, & Smith GT (2014). Less drinking, yet more problems: Understanding African American drinking and related problems. Psychological bulletin, 140(1), 188–223. doi:10.1037/a0032113 [PubMed: 23477449]

Zimmerman MA, & Schmeelk-Cone KH (2003). A longitudinal analysis of adolescent substance use and school motivation among African American youth. Journal of Research on Adolescence, 13(2), 185–210. doi:10.1111/1532-7795.1302003/full

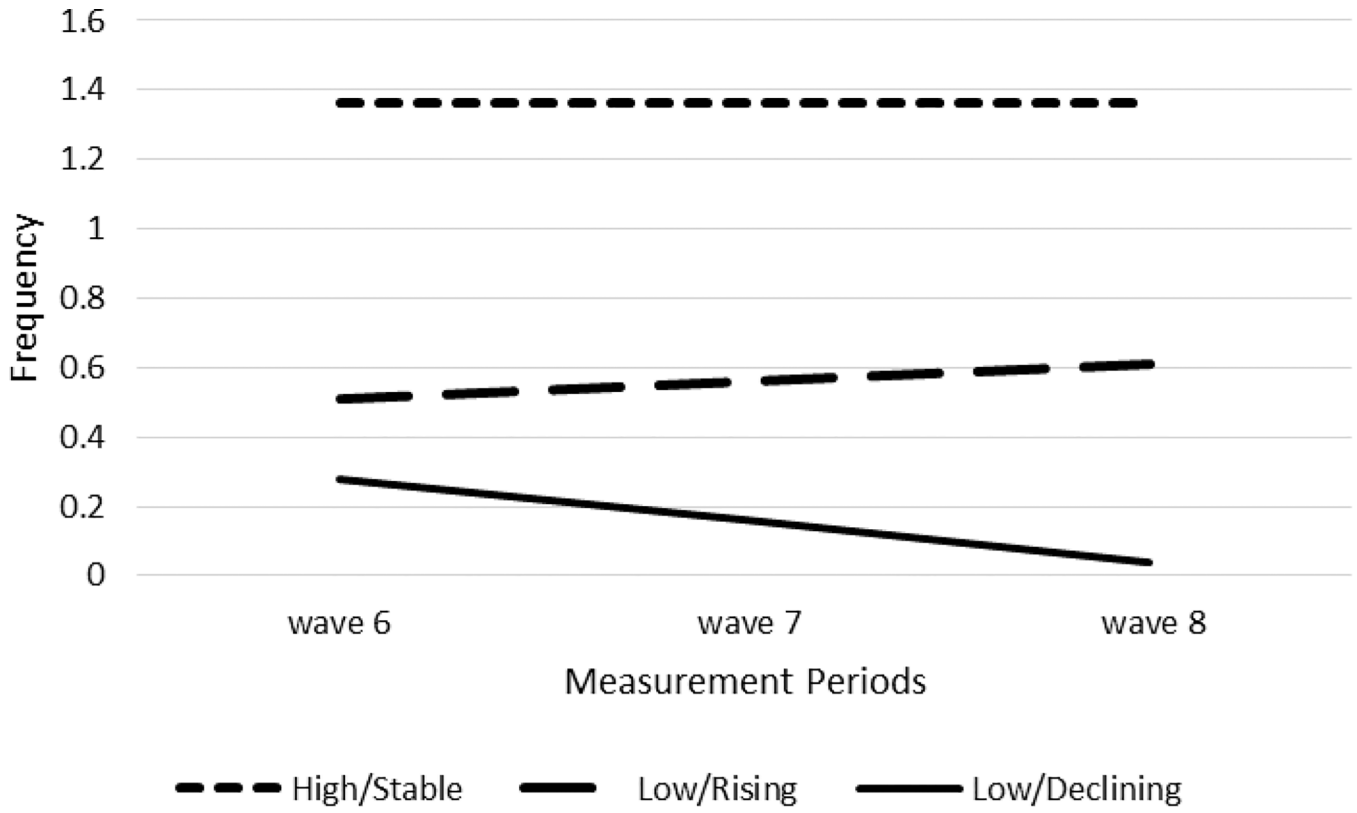

Figure 1.
Latent class trajectories of racial discrimination frequency (across waves 6 to 8) enumerated from growth mixture models.

Table 1

Means, Standard Deviations, and Correlations of Study Variables (imputed values)

Variables	1	2	3	4	5	6	7	8	*M* (*SD*) or %
1. Sex	1.00								50.8% Male
2. Employment Status	.05	1.00							94.9%
3. High School Graduate	−.02	.02	1.00						39.1%
4. Enrolled in College	−.07	.08*	−.60*	1.00					22.17%
5. Wave 1 Racial Discrimination	.14*	−.04	−.02	−.02	1.00				0.77 (0.75)
6. Wave 2 Racial Discrimination	.18*	−.05	−.04	.01	.48*	1.00			0.78 (0.72)
7. Wave 3 Racial Discrimination	.15*	.08*	−.05	.02	.36*	.59*	1.00		0.81 (0.76)
8. Problematic Alcohol Use	.19*	.01	−.02	−.04	.10*	.20*	.24*	1.00	0.47 (0.38)

Note.

* = $p < .05$

Table 2

Growth Mixture Model Goodness of Fit Indices for Racial Discrimination (3 waves of measurement)

Class	AIC	BIC	aBIC	VLMR LRT	LMR aLRT	B-LRT	Entropy	Class 1	Class 2	Class 3	Class 4
1 Class	4114.57	4150.76	4125.34	--	--	--	--	681	--	--	--
2 Class	3022.50	3094.88	3044.73	.00	.00	.00	.82	368	313	--	--
3 Class	2849.95	2958.51	2882.31	.00	.00	.00	.88	329	102	250	--
4 Class	2825.57	2970.32	2868.72	.37	.39	.00	.90	239	327	13	102

Note. VLMR LRT=Vuong-Lo-Mendell-Rubin Likelihood Ratio Test. LMR aLRT=Lo-Mendell-Rubin Adjusted Likelihood Ratio Test. B-LRT = Bootstrap Likelihood Ratio Test.

Table 3

Means and Variances of Intercept and Slope - Three Latent Classes

	Intercept	Intercept Variance	Slope	Slope Variance	Classificaiton	Perecntage
Latent Class Trajectory 1	1.09 *	0.19 *	0.04	0.09 *	High-Stable	48.31%
Latent Class Trajectory 2	0.28 *	0.03 *	−0.12 *	0.01 *	Low/Declining	14.98%
Latent Class Trajectory 3	0.51 *	0.08 *	0.05 *	0.00	Low/Rising	36.71%

Note.

* is $p < .05$

Table 4

Predictors on Racial Discrimination (Odds Ratio)

Trajectory Classifications		
	Class 1 (High/Stable)	**Class 3 (Low/Rising)**
Males	**2.91**	**3.03**
Employment Status	1.61	1.03
Graduated High School	0.57	0.69
Attending College	1.73	**2.95**

Note. Low/Declining was the reference class. Females, unemployed and not a H.S. graduate were reference groups. Values in bold represents odds ratios with $p < .05$.

Table 5

Mean (Standard Error) Comparisons of Problematic Alcohol Use By Latent Racial Discrimination Trajectories and Model Fit Indices

	Low/Declining	**Low/Rising**	**High/Stable**
Problematic Alcohol Use	0.44 (0.10)	0.47 (0.10)	0.55 (0.10)
	Low/Declining vs. High/Stable	**Low/Declining vs. Low/Rising**	**Low/Rising vs. High/Stable**
	$\chi^2(1) = 3.88$, $p = .05$	$\chi^2(1) = 0.39$, $p = .53$	$\chi^2(1) = 5.27$, $p = .02$

Note. Wald's chi-square difference tests were used to compare means of alcohol use by latent class.

Table 6

Problematic Alcohol Use by Latent Class Trajectory X Gender and Pairwise Tests

	High/Stable	Low/Rising	Low/Declining
Females	0.42[b]	0.48[b]	0.37[c]
Males	0.65[a]	0.48[b]	0.37[c]

Note. Means sharing the same superscript are not statistically different from each other (i.e., $p > .05$).