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Racial discrimination trajectories predicting psychological well-being: From emerging adulthood to adulthood

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Abstract

Perceived racial discrimination (PRD) has been documented as a risk factor for worse psychological well-being among African Americans. Yet, most researchers have not examined how trajectories of PRD during emerging adulthood shape psychological well-being in adulthood. Moreover, less is known about whether demographic factors and components of racial identity shape PRD over time. We identified trajectories of PRD among 605 African American emerging adults and examined whether PRD trajectories were associated with depressive symptoms, anxiety symptoms, and perceived lack of control in adulthood. Four trajectories of PRD were identified (i.e., high-stable, moderate-declining, low-rising, and low-stable), and demographic factors and racial identity indicators influenced the likelihood of trajectory classification. In addition, members of the moderate-declining trajectory exhibited higher levels of depressive symptoms, anxiety symptoms, and perceived lack of control than members in the low-stable trajectory. Our findings suggest that changes in PRD in emerging adulthood can extend our understanding of psychological well-being in adulthood.

Keywords

racism; psychological well-being; mental health; developmental effects

Racial discrimination, defined as "…differential treatment of members of racial outgroups by both individuals and social institutions" (Williams & Mohammed, 2009, p. 3), is a salient source of stress for African Americans (Berger & Sarnyai, 2015). The psychological consequences of perceived racial discrimination (PRD) are well-documented, including negative affect (Jones, Lee, Gaskin, & Neblett, 2014), difficulty coping with stress (Stock, Peterson, Molloy & Lambert, 2016), and poor mental health outcomes (Hurd, Varner, Caldwell, & Zimmerman, 2014). The longitudinal effects of PRD on the psychological well-being of African Americans have also been consistently documented (Assari, Moazen-Zadeh, Caldwell, & Zimmerman, 2017; Hurd et al., 2014).

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Nevertheless, our knowledge of how African Americans experience PRD over time remains limited (Hurd et al., 2014; Lee, Hope, Heinze, Cunningham, Caldwell, & Zimmerman, 2018; Smith-Bynum, Lambert, English, & Ialongo, 2014; Unger, Soto, & Baezconde-Garbanati, 2016). It is likely, for example, that PRD may change over time as youth transition into emerging adulthood because they prepare for and assume new roles and responsibilities that may require coping with racial discrimination in new ways. African American emerging adults living in Flint, Michigan, may, for example, experience more institutional forms of racial discrimination as they begin to interact with social institutions (e.g., colleges, banks) that reinforce practices that systematically disadvantages African Americans. It is also likely that some African Americans may begin to work or pursue higher education in more racially diverse social settings which can increase the likelihood of experiencing PRD (Arnett & Brody, 2008). Yet, we know relatively little about how changes in PRD influence adult developmental outcomes. While researchers have studied predictors and distal outcomes linked with PRD trajectories among African American adolescents (Lee, Heinze, Neblett, Caldwell, & Zimmerman, 2017; Smith-Bynum et al., 2014; Unger et al., 2016), only a few have studied the psychological effects of PRD on the transition from emerging adults to adulthood among African American respondents. Our study addresses this gap by (1) identifying distinct trajectories of PRD during emerging adulthood; (2) examining whether demographic and racial identity influence trajectory classification; and (3) evaluating whether PRD trajectories effect depressive and anxiety symptoms, and perceived control during adulthood.

Racial Discrimination and African American Emerging Adulthood

While PRD is a significant source of stress for most African Americans across the life span (Gee, Walsemann, & Brondolo, 2012), PRD is particularly prevalent and pernicious during emerging adulthood (Arnett & Brody, 2008). For instance, among African American emerging adults, PRD has been associated with depressive and anxiety symptoms (Hurd et al., 2014), alcohol-related health problems (Lee et al., 2018), and trauma-related symptoms (Polanco-Roman, Danies, & Anglin, 2016). As adolescents transition into adulthood, they are likely to depart from their familial context and ethnic enclaves into more racially diverse neighborhoods, colleges/universities, and workplaces (Arnett & Brody, 2008). These transitions, for African Americans, may increase exposure to PRD and its concomitant adverse psychological consequences. The longstanding legacies of segregation policies and practices may perpetuate beliefs that African Americans should move into more racially mixed and predominantly White neighborhoods to benefit from opportunities for upward economic mobility that are not typically found in predominantly Black neighborhoods (e.g., more employment opportunities; Williams & Mohammed, 2013). Though some African Americans desire to increase in these means and move into these neighborhoods, non-Black residents may feel threatened by the increasing percentage of Black residents and may exhibit racial discriminatory behaviors (Pager & Shepherd, 2008; Stewart, Baumer, Brunson, & Simons, 2009). Consequently, the psychological and psycho-physiological consequences of PRD (e.g., depressive symptoms, cortisol attenuation) are particularly detrimental for African American emerging adults residing in predominantly White neighborhoods (English et al., 2014; Lee et al., 2018). Thus, African American emerging adults must contend with

challenging social contexts as they begin to interface with social institutions (e.g., educational system, law enforcement) that are potentially more hostile to them, resulting in more PRD and stress.

Multiple Trajectories of Perceived Racial Discrimination

Researchers have examined longer term effects of PRD on mental health (Assari et al., 2017; Hurd et al., 2014; Lee et al., 2018; Smith-Bynum et al., 2014; Unger et al., 2016), but most have examined only one or two time points (Assari et al., 2017). Assari and colleagues (2017) found that PRD during emerging adulthood was associated with depressive and anxiety symptoms among African American males a decade later. While this approach reveals how prior PRD is associated with current psychological well-being, little is known about how African Americans experience PRD over time (e.g., rate of change). Further, while a single growth curve may characterize an average PRD trajectory (e.g., Hurd et al., 2014), a single trajectory may not sufficiently characterize PRD experiences for all African American emerging adults. Examining multiple trajectories of PRD may be conceptually significant during emerging adulthood as many African Americans may access and occupy diverse socio-ecological environments that can either augment or diminish their risk of PRD (Arnett & Brody, 2008). For instance, African Americans who live or work in predominantly White contexts may encounter more interpersonal forms of PRD, such as being hassled or made to feel inferior due to one's race (English et al., 2014). Lee et al. (2017) identified three PRD trajectories (e.g., high-stable, low-rising, & low-declining) among African American emerging adults and found that men in the high-stable trajectory reported the highest level of alcohol-related problems at the end of emerging adulthood. However, this study has two limitations. First, although the sample included 21–23 year old African American emerging adults, earlier experiences of PRD (ages 18–20) may be a critical period that shapes trajectories of psychological distress and substance use (Hurd et al., 2014). Second, while longitudinal associations between PRD and psychological well-being have been documented within a single developmental period (e.g., emerging adulthood), we know little about the long-term psychological consequences of PRD.

Demographic and Psychological Predictors of Perceived Racial Discrimination

Socio-demographic factors and racial identity (e.g., centrality, private, and public regard) have been associated with PRD. African American men, for example, tend to report higher levels of PRD than females (e.g., Pieterse & Carter, 2007). Educational attainment has also been associated with higher levels of PRD (Hudson, Neighbors, Geronimus, & Jackson, 2016), but employment status has been modestly (Lee et al., 2017) or not associated (Hudson et al., 2016) with PRD. Positive attitudes about one's own racial group (i.e., private regard) and positive thoughts about how others view their racial group (i.e., public regard) have been associated with less PRD (Seaton, Yip, & Sellers, 2009; Sellers, Caldwell, Schmeelk-Cone, & Zimmerman, 2003; Sellers, Copeland-Liner, Martin, & Lewis, 2006). Centrality of race to the defining of one's self, however, was associated with more PRD (Banks & Kohn-Wood, 2007). Consistent with theories of rejection expectation (Mendoza-

Denton, Downey, Purdie, Davis, & Pietrzak, 2002), a high level of racial regard may reduce one's likelihood of attributing unfair treatment to race. Moreover, Sellers and colleagues (2001) posited that individuals may perceive more PRD if race is central to one's identity. Private and public regard may, therefore, predict consistently low or declining trajectories of PRD, whereas centrality may predict consistently high or increasing trajectories of PRD. These studies are also limited because they are not longitudinal or do not examine how PRD is experienced during emerging adulthood. That is, racial identity at the beginning of emerging adulthood may influence the trajectory of PRD throughout emerging adulthood.

Perceived Racial Discrimination and Psychological Well-being

Negative psychological outcomes including unfavorable mental health outcomes and coping have been robustly associated with PRD throughout the life course (Gee et al., 2012), and particularly during emerging adulthood (Hope, Hoggard, & Thomas, 2015). Minority Stress Theory (Meyer, 2003) posits that PRD exposure and subsequent challenges with coping can lead to greater depressive (English & Lambert, 2014) and anxiety (Lee, Neblett, & Jackson, 2015) symptoms. Compromised coping, which manifests both in an increase in avoidant coping strategies (Utsey, Ponterotto, Reynolds, & Cancelli, 2001) and in the overutilization and depletion of available coping resources (Harrell, 2000) can be psychologically damaging (Polanco-Roman et al., 2016). The Minority Stress Theory, therefore, implies that the more PRD one perceives over time, the poorer their mental health outcomes (Meyer, 2003). Because stress accumulates, particularly when avoidant coping strategies are utilized, it is theorized that mental health would continue to deteriorate from the cumulative stressors over time (Sameroff, 2000).

Few researchers have studied growth patterns of PRD during emerging adulthood and their association with adult psychological well-being outcomes. Studying the historical effects of PRD across the life course may clarify how of the accumulative nature of this stressor may influence human development (Jones et al., under review). For example, Assari et al. (2017) found that more PRD in emerging adulthood is predictive of more anxiety and depressive symptoms in the next decade of life for Black males, but not Black females. Yet, we know very little about how trajectories of PRD during emerging adulthood may influence psychological well-being outcomes during adulthood. Further, we know little about how distinct growth patterns of PRD during emerging adulthood influences non-clinical indicators of psychological well-being, such as perceptions of control over stress. By examining different growth patterns of PRD, we can elucidate how changes in PRD during emerging adulthood shapes various indicators of psychological well-being as African Americans transition into adulthood. It is plausible, for example, that chronic PRD may sustain hypervigilance and dysregulate stress pathways over time (e.g., increase allostatic load) and increase susceptibility to race-related stress and ensuing mental health effects (Berger & Sarnyai, 2015), but that declining PRD may require less coping behavior and therefore more psychological well-being. Thus, the way PRD unfolds during emerging adulthood may shape adult psychological well-being among African Americans.

The Current Study

Although few researchers have examined the long-term effects of PRD on mental health (e.g., Assari et al., 2017), most examined these effects within, but not across, developmental periods. Consequently, our understanding is limited as to how trajectories of PRD during emerging adulthood shape adult psychological well-being. Thus, our study included three aims. The first aim was to chart the multiple, unique trajectories of PRD during emerging adulthood (ages 19–25) for African Americans. Consistent with prior studies (e.g., Lee et al., 2017), we hypothesized that multiple and distinct trajectories would emerge. The second aim evaluated whether sociodemographic factors and aspects of racial identity shaped how PRD is experienced over time. We hypothesized that being male, having higher educational attainment, being employed, and endorsing lower levels of private and public regard and higher levels of centrality would influence the likelihood of trajectory classification. Our third aim was to test whether the trajectories of PRD influenced depressive and anxiety symptoms and perceived lack of control during adulthood. We hypothesized that emerging adults in the consistently elevated or rapidly rising trajectories of PRD would report worse psychological outcomes as adults than members of a consistently low PRD trajectory. Given the sex differences in the rate of internalizing symptoms in adulthood, with greater prevalence among females (e.g., Salk, Hyde, & Abramson, 2017), we conducted a sensitivity analysis to examine sex differences in the longitudinal link between PRD and psychological well-being.

Method

Participants

Participants in the study consisted of 605 African American emerging adults, followed across eight waves of data from the Flint Adolescent Study: wave 5 (2000; M_{age} = 20.05), 6 (2001; M_{age} = 21.07), 7 (2002; M_{age} = 22.07), 8 (2003; M_{age} = 23.06), 9 (2009; M_{age} = 29.31), 10 (2010; M_{age} = 29.79), 11 (2011; M_{age} = 30.75), and 12 (2012; M_{age} = 31.79). Data for each participant, starting from their 9th grade year in high school, were collected annually from waves 1 to 4 (1994–1997), 5 to 8 (2000–2003), and waves 9 to 12 (2009–2012), with a 6-year gap between waves 8 and 9. Waves 5 to 8 reflects emerging adulthood (age range = 19 to 25), whereas waves 9 to 12 reflects adulthood (age range = 28 to 34). Flint Adolescent Study is an ongoing interview-based, longitudinal study that was originally designed to identify risk and protective factors associated with school drop-out and alcohol, tobacco, and other drug misuse (Zimmerman & Schmeelk-Cone, 2003). A total of 850 participants were followed from 1994 to 2012 and were included in the study if (1) they were not diagnosed with a developmental or emotional disability and (2) if they had a grade-point-average of 3.0 or lower during the 8th grade. Due to attrition, only 288 of the 605 (47.60%) African American emerging adults (waves 5 to 8) were observed in waves 9 to 12. We conducted an attrition analysis to assess if the participants observed in waves 9 to 12 were different from the participants missing in waves 9 to 12 prior to analysis for the third study aim.

Study Context

Participants were recruited from Flint, Michigan. During the data collection period, Flint was consistently ranked as having the highest poverty rate among all other Michigan cities and as one of the most racially segregated cities in the United States (Glaeser, Edward, & Jacob, 2001). Reflective of this, African Americans residing in Flint contend with racism- and poverty-related stressors that may jeopardize psychological well-being. By examining trajectories of PRD and its psychological consequences, we can begin to understand how PRD over time influences psychological well-being among African Americans living in Flint and similar cities.

Procedures

Interviewers were trained to conduct annual interviews at the participant's school or in a community setting. When possible, interviewers were matched to study participants by gender and race. After completing the interview, participants immediately completed a survey that consisted of questions about the participant's PRD experience, substance use, health risk behaviors, and other sensitive topics. The University of Michigan's institutional review board approved the study protocol (Flint Adolescent Study, UM-IRB # H03–0001 309).

Measures

Anxiety and Depressive Symptoms.—The Brief Symptoms Inventory (Derogatis & Spencer, 1982) measured the frequency of anxiety (i.e., 6-items) and depressive symptoms (i.e., 6-items) during the face-to-face interview. For each item, participants responded on a 5-point Likert-type scale ranging from "never" to "very often". Sample items for anxiety symptoms include "feeling fearful" and "feeling tense or keyed up," while sample items for depressive symptoms include "feeling blue" and "feeling no interest in things." Due to missing data, participants' mean depressive and anxiety symptom scores were averaged across waves 9 to 12 as a way to minimize missingness (i.e., n_{Wave9} = 211, n_{Wave10} = 258, n_{Wave11} = 267, n_{Wave12} = 246). Both the anxiety symptom sub-scale (i.e., $\alpha_{Wave\ 9}$ = .81; $\alpha_{Wave\ 10}$ = .77; $\alpha_{Wave\ 11}$ = .82; $\alpha_{Wave\ 12}$ = .78) and the depressive symptom subscale (i.e., $\alpha_{Wave\ 9}$ = .87; $\alpha_{Wave\ 10}$ = .87; $\alpha_{Wave\ 11}$ = .88; $\alpha_{Wave\ 12}$ = .84) demonstrated good reliability across all waves.

Perceived Lack of Control.—Five items from the Perceived Stress Scale (10-items; Cohen, 1983) measured the participants' perceived lack of control during the past month. While all 10 items reflect global stress, the five retained items are conceptually related to the perceived lack of control participant's feel over stressful situations in their lives (e.g., Hewitt, Flett, & Mosher, 1992). Participants responded on a 5-point Likert-type scale of "never" and "very often". Sample items include, "in the past month, how often have you felt that you were unable to control the important things in your life?" and "in the last month, how often have you felt that things were not going your way?". Due to missing data, perceived stress scores were averaged at each wave and then averaged across waves 9 to 12 as a way to minimize missingness (i.e., i.e., n_{Wave9} = 211, n_{Wave10} = 258, n_{Wave11} = 267,

n_{Wave12} = 246). The perceived stress scale had good reliability at each wave (i.e., αWave 9 = .74; αWave 10 = .81; αWave 11 = .78; αWave 12 = .73).

Perceived Racial Discrimination.—We used the Daily Life Experiences scale (DLE; Harrell, 1997) to assess frequency of racism-related confrontations in the last 12 months. Items were on a 6-point Likert-type rating scale (0 = never happened to me; 5 = once a week or more). Sample items include, “having your ideas ignored” and “not being taken serious because of your race”. DLE items were averaged at each wave (i.e., waves 5, 6, 7, and 8) and the scale had good internal consistency at each wave (i.e., $\alpha_{Wave\ 5}$ = .88; $\alpha_{Wave\ 6}$ = .89; $\alpha_{Wave\ 7}$ = .89; $\alpha_{Wave\ 8}$ = .88).

Racial Regard and Centrality.—The Multidimensional Inventory of Black Identity (MIBI; Sellers, Rowley, Chavous, Shelton, & Smith, 1997) measured private regard, public regard, and racial centrality. The private regard subscale (six items) measures the degree to which the participants feel positive about being African American, while the public regard subscale (six items) measures their beliefs of how others view African Americans. The racial centrality subscale (six items) reflects the significance individuals place on their racial group membership. All items were scaled on a Likert-type scale of 0 (*strongly disagree*) to 6 (*strongly agree*). Private (i.e., α_{wave5} = .67) and public regard (i.e., α_{wave5} = .77), as well as racial centrality (i.e., α_{wave5} = .68) demonstrated near-satisfactory to satisfactory reliability. Lastly, private regard, public regard, and centrality were stable constructs throughout emerging adulthood (e.g., nonsignificant random and fixed effects of linear growth) and was, therefore, measured at wave 5.

Covariates.—The participant’s sex was assessed at the first study wave, while information about their educational attainment (i.e., high school drop-out, high school graduate, post graduate work) and employment was assessed at wave 5 (i.e., 0 = unemployed, 1 = employed). Baseline (wave 5) depressive symptoms (α = .82), anxiety symptoms (α = .78), and perceived lack of control (α = .72) were also entered as covariates in our analysis.

Analytic Approach

We conducted all statistical analyses in Mplus, version 8.2 (Muthén & Muthén, 2019). Preliminary analyses included examining descriptive statistics and unconditional latent growth models to examine the latent trajectory of PRD from waves 5 to 8. To determine model fit, we assessed the root mean square error of approximation (RMSEA), comparative fit index (CFI), and standardized room mean square residual (SRMR). For Aim 3, attrition analyses were conducted to determine if participants included in the analysis were different from those missing from waves 9 to 12 for PRD, racial identity, and demographics (*see* Bollen & Curran, 2006).

Next, to examine distinct growth trajectories of PRD, growth mixture models were estimated (Muthén & Shedden, 1999). A finite number of latent trajectory classes were obtained using the following fit indices: Akaike information criterion (AIC), Bayesian information criterion (BIC), and sample-adjusted Bayesian information criterion (aBIC; see Muthén & Shedden, 1999). As the number of latent trajectory classes increased, reductions in AIC, BIC, and

aBIC suggested a better fitting model. We also conducted likelihood ratio tests—that is, 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 determine significant improvement in model fit between k versus k-1 latent trajectory class models. Subsequent to selecting the number of latent trajectory classes, posterior probabilities were used to classify participants into latent trajectory classes of discrimination. The automated 3-step approach to latent class analysis (R3STEP; Vermunt, 2010) method was used to estimate whether sex, educational attainment, employment, private regard, public regard, and racial centrality influenced trajectory classification using multinomial regression models.

To test the second aim of the study, the Bolck, Croon, and Hagenaars (BCH) method was implemented to approximate differences in depressive symptoms, anxiety symptoms, and perceived stress between the latent trajectory classes of PRD (Bolck, Croon, & Hagenaars, 2004). The BCH method, relative to the one- and three-step approach (Dziak, Bray, Zhang, Zhang, & Lanza, 2016), corrects for measurement error in the class variables and allows for the simultaneous estimation of covariates and distal outcomes, while preventing any undesirable shifts in the latent classes. Each observation in each class is assigned a weight variable (i.e., classification error probabilities) and the auxiliary model is subsequently estimated as a multigroup model using these weights. The BCH method, in turn, corrects for classification error when assessing the association between the latent class variable and the distal outcome. Our distal outcomes were measured during adulthood (waves 9 to 12), whereas our latent class trajectories were measured during emerging adulthood (waves 5 to 8). We compared distal outcomes across latent trajectory classes by using weighted multiple group analysis in which the subgroups correspond to latent trajectory classes (Asparouhov & Muthén, 2014). The participant's gender, educational attainment, private regard, public regard, and racial centrality during emerging adulthood were included as covariates. We also adjusted each indicator of adult psychological well-being (e.g., adult depressive symptoms) by its baseline score as measured in emerging adulthood. Wald tests were conducted to assess mean differences in depressive symptoms, anxiety symptoms, and a perceived lack of control across latent trajectory classes. Since the BCH analysis has a single dependent variable, FIML was not available to handle missing data. Alternatively, listwise deletion was used to handle missing data as the data was missing completely at random (i.e., Little's Missing Completely at Random test: $p = .107$). For the growth mixture models, however, FIML was used to treat missing data.

Results

Preliminary Analysis

Descriptive statistics and variable intercorrelation are reported in Table 1. Correlations were modest in size with larger correlations observed between the adjacent waves of PRD measures and among the adult psychological well-being outcomes. With exception to wave 8 PRD (i.e., ages 22–23), modest associations were observed between PRD at all other waves and adult psychological well-being. Lastly, being male was associated with higher PRD,

public regard was associated with less PRD at wave 5 (ages 19–20), and being employed was associated with less PRD at wave 6 (ages 20–21).

Attrition Analysis.—Due to data attrition from emerging adulthood to adulthood, a series of attrition analyses were performed. No differences were observed between the analyzed (n = 288) and missing (n = 317) participants across study variables, with exception to gender (Table 6), in which 54.17% of the observed participants and 40.38% of the missing participants were males.

Multiple Trajectories of Racial Discrimination (Aim 1)

The latent growth model of PRD consisted of a significant intercept term (α = .820), but not a significant slope term (i.e., stable line). Random effects indicated heterogeneity around the intercept (σ = .350) and slope (σ = .024). Table 2 reports the model fit information for the candidate growth mixture models. The BIC, sample sized adjusted BIC, and the bootstrap LRT indicated that the 5-class structure fit the data better than the four-class structure. Contrarily, the AIC indicated that the 4-class structure fit the data better than the 5-class structure and the LMR-LRT indicated no difference in model fit between the 4- and 5-class structure. The smallest class in the 5-class structure consisted of 10 participants reporting slightly higher levels of PRD than those in the high-stable class. Given that the 4- and 5-class structures were similar and that fit is only slightly better in the 5- than 4-class structure, we chose to use the 4-class structure to represent PRD (Figure 1).

The largest latent trajectory class (i.e., n = 207; 34.77%) can be characterized as having moderate levels of PRD at wave 5 (i.e., ages 19–20) with gradual declines over time (i.e., moderate-declining). The next largest class (24.79%; n = 150) had the lowest level of PRD at wave 5 compared to participants from all the other classes. They also had no change in PRD over time (i.e., low-stable). We had a high stable group (22.81%; n = 138) that reported the highest level of PRD at wave 5 and no change over time. A low-rising trajectory was also found that had the fewest number of participants (18.18%; n = 110) and low PRD at wave 5 that increased over time.

Predictors of the Racial Discrimination Trajectories (Aim 2)

Compared to the low-stable class, being male (Odds Ratio [OR] = 4.040) and increasing racial centrality (OR = 1.592) was associated with higher odds of classifying into the high-stable trajectory class than the low-stable class. In addition, being employed (OR = 0.299) was associated with lower odds of classifying into the high-stable trajectory class than the low-stable trajectory class (Table 4). Relative to the low-stable trajectory class, higher levels of private regard (OR = .570) was associated with lower odds of classifying into the moderate-declining trajectory class, whereas higher levels of centrality (OR = 1.647) was associated with higher odds of classifying into the moderate-declining trajectory class. In sum, being female, employed, having higher levels of private regard, and lower levels of racial centrality increased the likelihood of classifying into the low-stable PRD trajectory during emerging adulthood.

Differences in Psychological Well-Being Across the Trajectory Classes (Aim 3)

The moderate-declining class reported the highest level of anxiety symptoms (M = 0.451, SD = 0.581), followed by high-stable group members (M = 0.321, SD = 0.470), low-rising group members (M = 0.180, SD = 0.638), and low-stable group members (M = 0.163, SD = .392; Table 5). Wald's χ^2 test indicated anxiety symptoms differed between members in the moderate-declining and low-stable trajectory class (i.e., χ^2 (1) = 5.844, p = .016). For depressive symptoms, members of the moderate-declining class reported the highest level of depressive symptoms (M = .443, SD = .579), followed by members in the high-stable trajectory class (M = .475, SD = .529), low-rising trajectory class (M = .443, SD = .606), and low-stable trajectory class (M = .345, SD = .362). Wald's χ^2 test indicated depressive symptoms differed between members in the moderate-declining and low-stable trajectory classes (i.e., χ^2 (1) = 5.678, p = .017). Lastly, members of the moderate-declining trajectory class reported the highest levels in the perceived lack of perceptions of control (M = 1.422, SD = .477), followed by members in high-stable trajectory class (M = 1.320, SD = .629), low-stable trajectory class (M = 1.153, SD = .604), and the low-rising trajectory class (M = 1.071, SD = .656). Wald's χ^2 test indicated differences in the perceived lack of perceptions of control between members in the moderate-declining and low-stable trajectory classes (i.e., χ^2 (1) = 4.188, p = .041), and the moderate-declining and low-rising trajectory class (i.e., χ^2 (1) = 4.344, p = .037).

Sensitivity Analysis.—We conducted a sensitivity analysis to examine whether the result would diverge between males and females. That is, we examined whether psychological well-being outcomes varied between African American emerging adult males and females within trajectory classes. The within-class effect of sex was not significant in any of the latent trajectory classes, suggesting that reports of psychological well-being outcomes are similar between African American emerging adult males and females.

Discussion

Our findings suggest that a single underlying trajectory of PRD may inadequately capture the developmental progression of PRD among African American emerging adults. We identified four distinct trajectories of PRD during emerging adulthood (i.e., high-stable, moderate-declining, low-rising, and low-stable). It is notable, however, that only a quarter of participants reported consistently low levels of PRD throughout emerging adulthood and over one third reported increasing or consistently high levels of PRD over time. While theoretical work by Arnett and Brody (2008) suggests that African Americans transitioning from adolescence into emerging adulthood may generally experience higher levels of PRD, our results suggest that the trajectory of PRD varies considerably during emerging adulthood for African Americans. It is conceptually plausible that in segregated cities, such as Flint, MI (Highsmith, 2009), person-level PRD trajectories are, in part, influenced by socio-ecological factors such as neighborhood racial composition. Researchers, to this end, have documented higher levels of PRD among African Americans living in predominantly White neighborhoods relative to predominantly Black neighborhoods (English et at., 2014). Thus, our results indicate that the developmental progression of PRD may be best characterized by multiple growth curves.

With regard to our second study aim, PRD for African American emerging adults was related with demographic factors and patterns of racial identity. Consistent with past research (Chavous, Rivas-Drake, Smalls, Griffin, & Cogburn, 2008), we found that males were more likely than females to classify into the high-stable than the low-stable trajectory. Researchers posited that African American males, across the life span, are one of the most stereotyped groups in the United States (Chavous et al., 2008). They may, therefore, confront higher levels of PRD than their female counterparts. Current employment status, contrary to our expectation, lowered the odds of classifying into the high-stable relative to the low-stable trajectory. To this end, unemployed African American emerging adults may have been treated unfairly during the hiring process and, in turn, been unfairly denied employment opportunities (Pager & Shepherd, 2008). Because African Americans are more vulnerable to discriminatory practices when entering the labor market, African American emerging adults may experience more PRD as they seek employment (Pager & Shepherd, 2008). Moreover, employed African American emerging adults may perceive less racism-related barriers to upward social mobility than their unemployed counterpart. This may, in part, explain the higher PRD levels among unemployed versus employed African American emerging adults.

Among the dimensions of racial identity, higher racial centrality increased the odds of classifying into the high-stable and moderate-declining trajectories relative to the low-stable trajectory. Researchers have documented a positive association between racial centrality and PRD (Burrow & Ong, 2010) suggesting that African American emerging adults with higher racial centrality may attribute racism as the source of negative treatment. In addition, higher levels of private regard were associated with lower odds of classifying into the moderate-declining trajectory than the low-stable trajectory. Burrow and Ong (2010) aptly noted that African Americans with higher levels of private regard may be less likely to perceive their race as burdensome and, therefore, less likely to attribute negative events to their race. It is also possible that African Americans endorsing high levels of private regard may engage more frequently with members of their own racial group, which could reduce the likelihood of PRD. Taken together, possessing higher levels of private regard may reduce expectations for race-based negative treatment and reduce the likelihood of PRD. Conversely, if race is salient to one’s self-image, individuals may be more likely to attribute negative treatment to race (see Mendoza-Denton et al., 2002) and therefore report increased PRD. Our results, therefore, suggest that the way in which one ascribes meaning to their racial group can influence PRD.

With regard to the third study aim, and consistent with our hypothesis, we found that different trajectories of PRD during emerging adulthood can adversely influence psychological well-being for African Americans in adulthood. Respondents in the moderate-declining trajectory reported higher levels of anxiety symptoms, depressive symptoms, and a perceived lack of control than those in the low-stable trajectory. Notably, members of the moderate-declining trajectory also reported lower psychological well-being compared to all other trajectory classes. Consistent with the Chronic Unpredictable Stress model (Sequeria-Cordero, Salas-Bastos, Fornaguera, & Brenes, 2019) and anticipatory stress paradigm (Monat, Averill, & Lazarus, 1972), stressors that are uncontrollable and unpredictable may be particularly psychologically deleterious (Havranek et al., 2016). It is conceptually

reasonable that moderate levels of PRD may be unpredictable because it does not happen often and may be surprising when it does occur making it difficult to anticipate and therefore more difficult to cope with than if one is more consistently experiencing discrimination and on guard as a result. Thus, African Americans in the moderate-declining trajectory may contend with anticipatory stress (see Monat, Averill, & Lazarus, 1972).

Moreover, contrary to our hypothesis, no differences in adult psychological well-being were observed between emerging adults in the high-stable trajectory and any of the other trajectories. Guided by the transactional model of stress and coping (Lazarus & Folkman, 1984) and specified in models with racism-related stress in particular (Clark, Anderson, Clark, & Williams, 1999), these findings suggest that African Americans who routinely perceive high levels of racial discrimination may have cultivated more resilience-promotive resources and assets to reconcile the emotional toll of racism-related stress. For example, Lewis-Coles and Constantine (2006) found that racism-related stress was associated with more religious problem solving and collective coping such as talking about PRD with others. On the other hand, PRD may not occur frequently enough for African Americans in the low-rising and low-stable trajectory classes to implicate psychological well-being or trigger efforts to cope. It is also plausible that African Americans in the moderate-declining trajectory, unlike those in the high-stable trajectory, had difficulty coping with the recurring and unpredictable nature of PRD or may misattribute their racial stress to other stressors (Clark et al., 1999). Despite reporting less PRD than those in the high-stable trajectory, members in the moderate-declining trajectory may have had to cope with the added burden of anticipatory stress. Thus, specific coping styles in response to PRD may influence mental health outcomes in the long-run and additional research is needed to determine the type of coping strategies implemented within each of the PRD trajectories. Given the pattern of results, one might surmise that African American emerging adults who experienced consistently high PRD turned to adaptive coping strategies, whereas less effective coping methods were used among those reporting moderate levels of PRD.

Lastly, and contrary to our hypothesis, emerging adults in the low-rising trajectory reported similar levels of anxiety symptoms, depressive symptoms, and a perceived lack of control than their low-stable trajectory counterparts. This pattern may be attributed to having a low level of PRD at the onset of emerging adulthood and relatively lower levels of PRD during emerging adulthood than the moderate-declining and high-stable trajectories. Within the stress and coping theoretical framework (Lazarus & Folkman, 1984), emerging adults with a low level of PRD may appraise racism-related stress as manageable. Moreover, the rate of increase in the low-rising trajectory was modest. That is, low but steadily increasing levels of PRD may offer individuals an opportunity to develop psychological hardiness to the stressor because they are not flooded by the experiences. Emerging adults in the low-rising trajectory may also experience low PRD-related stress overall.

Limitations and Future Directions

Several study limitations should be noted. First, the generalizability of our results is limited to African Americans residing in a low-income, urban setting and with a higher risk for school dropout. While the emerging adults in our study are at greater risk for contending

with stressful life events (i.e., racism, poverty), scores in the brief symptom index were comparable to scores from a non-clinical sample in the United States (Meijer, de Vries, & van Bruggen, 2011). Future research examining associations between PRD trajectories and well-being within a nationally representative sample of African Americans would be useful. Given that Black Americans are not monolithic, we also encourage replication of these results in other Black ethnic groups (e.g., Black Caribbean, Afro-Latinx, African immigrants). Second, a 6-year gap separated waves 8 and 9. Although we controlled for baseline levels of internalizing symptoms during emerging adulthood and during participants' residency in Flint, Michigan (i.e., less likely to be large socioenvironmental transitions), it is plausible that the link between the PRD trajectories and adult psychological well-being is mediated by psychosocial (e.g., coping behavior, stressful life events), biological (e.g., chronic cortisol activation), and environmental factors (e.g., neighborhood racial characteristics) within the missing 6-year period. Nevertheless, our study is one of the first to detect a link between trajectories of PRD in emerging adulthood and psychological well-being in adulthood. Third, while researchers conceptualize racial discrimination as a multidimensional construct (e.g., interpersonal, institutional racial discrimination; Williams & Mohammed, 2013), we only examined individual forms of PRD. Our results suggest, however, that future research that examines the synergistic effects among different types of PRD would be useful. This would provide useful assessments of how racism-related stressors may uniquely affect psychological well-being among African Americans. Fourth, while PRD can occur during childhood and have a cumulative effect on adult psychological well-being, the original dataset was limited to PRD exposure during and after emerging adulthood (i.e., wave 5 and onwards). It is, therefore, important for future researchers to assess whether longitudinal variations in PRD from childhood to emerging adulthood shapes psychological well-being outcomes during adulthood. Lastly, due to the six-year gap in data collection we had significant attrition between waves 8 and 9. While our data is missing completely at random, the missing data may still reduce statistical power and increase standard errors (Dong & Peng, 2013). Yet, we did find effects which suggests that the effects of PRD may be quite robust. Nevertheless, it is crucial that future researchers examine the long-term effects of PRD on psychological well-being using a longitudinal dataset with less attrition.

Conclusion

These limitations notwithstanding, our study adds to our understanding of the long-term noxious effects of PRD in three unique and significant ways. First, our results demonstrate that PRD experiences during emerging adulthood is not static and that multiple trajectories with differing effects characterize the developmental patterns of PRD during this vital life stage. Second, we demonstrate that studying PRD requires attention to both demographic characteristics and racial identity. Third, our results stress the importance of examining developmental patterns of PRD to better understand psychological well-being among African American emerging adults. That is, early experiences of PRD can have long lasting repercussions for psychological well-being outcomes. We urge researchers, clinicians, and other stakeholders to incorporate historical accounts of PRD to better understand and contextualize coping behaviors and psychological well-being among African Americans. Researchers can also advance findings from the current study by investigating whether

transitions in racial identity shape the experience of PRD over the life course. Such information may empower clinicians to design and implement culturally sensitive treatment plans that address the psychological toll of PRD among African American youth and emerging adults. Prevention strategies that further empower Black individuals to develop meaningful, effective, and healthy coping strategies should be coupled with multi-faceted prevention strategies to reduce microaggressions and other forms of racism so that coping with PRD does not occur in the first place.

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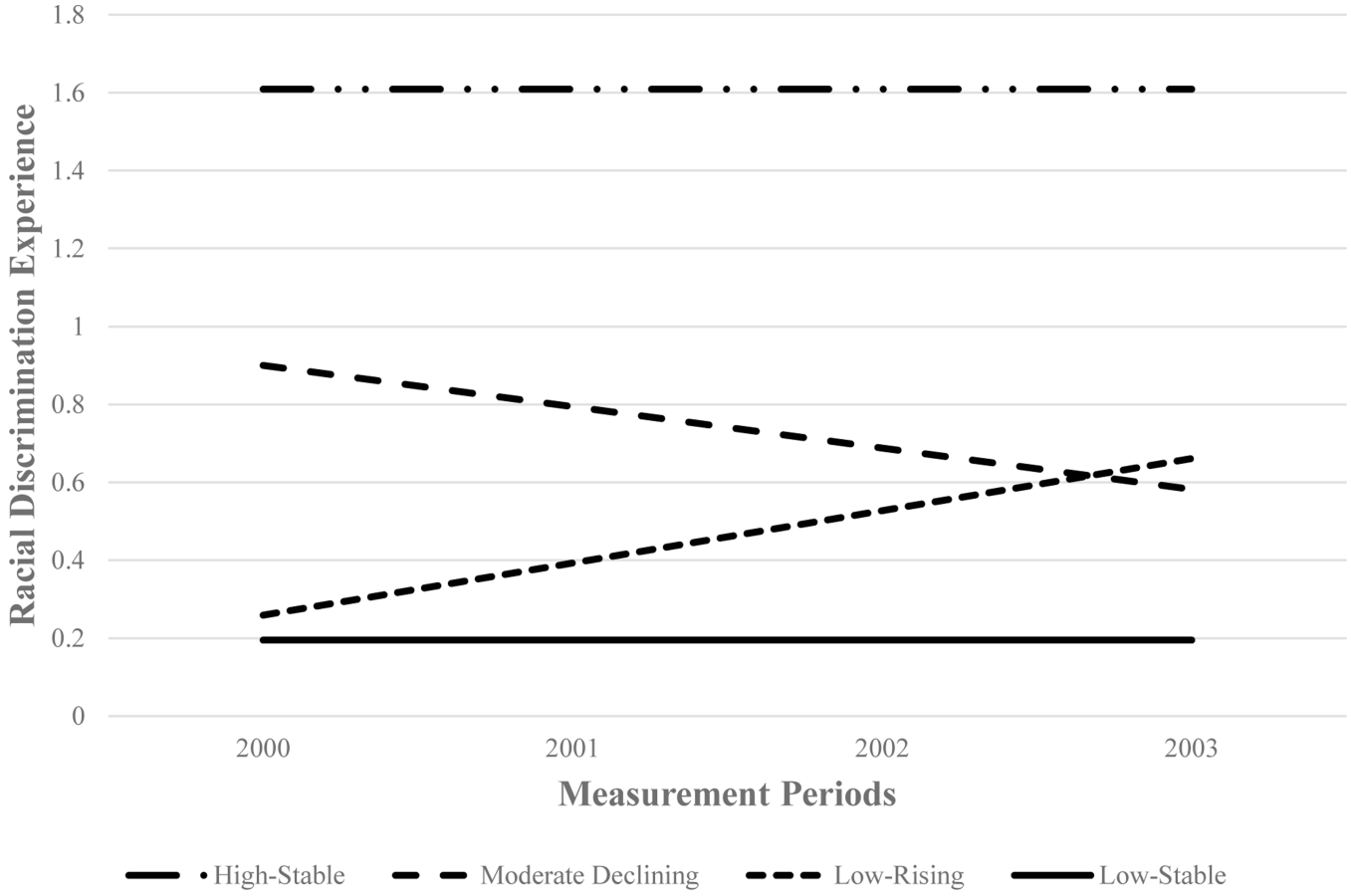

Figure 1.
Trajectories of PRD from the growth mixture model.

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Table 1

Descriptive Statistics and Intercorrelations Between Study Variables

Study Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	*M (SD)* or %
1. Male (Wave 1)	--															335 Males (49.2%)
2. High School Graduate (Wave 5)	−.019	--														205 HS Grads (30.1%)
3. More than High School (Wave 5)	−.053	−.603**	--													151 More than HS (22.2%)
4. Employed Full/Part Time (Wave 5)	.023	.037	.075	--												308 Employed (45.2%)
5. Psychological Distress (Wave 5)	−.126**	.052	−.162**	−.070	--											.663 (.616)
6. Public Regard (Wave 5)	.129**	.103*	−.129**	−.016	−.140**	--										3.092 (1.075)
7. Private Regard (Wave 5)	.088	.050	.063	.051	−.158**	.219**	--									5.188 (1.027)
8. Racial centrality (Wave 5)	.150	.017	.011	.012	−.137**	.194**	.603**	--								4.722 (1.132)
9. Racial Discrimination (Wave 5)	.064	−.056	.060	−.037	.319**	−.225**	−.073	−.003	--							.837 (.852)
10. Racial Discrimination (Wave 6)	.159**	−.018	−.028	−.119*	.297**	.010	.048	.067	.417**	--						.782 (.858)
11. Racial Discrimination (Wave 7)	.198**	−.041	.028	−.062	.162**	−.027	−.035	.049	.435**	.430**	--					.775 (.840)
12. Racial Discrimination (Wave 8)	.186**	−.066	.032	−.074	.127*	−.040	−.065	−.029	.391**	.309**	.516**	--				.811 (.879)
13. Anxiety Symptoms (Adulthood)	−.118*	.076	−.135**	−.040	.403**	−.073	−.096	−.083	.167**	.164**	.171**	.069	--			.540 (.600)
14. Depressive Symptoms (Adulthood)	−.154**	112*	−.091	−.024	.450**	−.076	−.106	−.104	.165**	.127*	.161**	.087	.757**	--		.620 (.638)
15. Perceived Lack of Control (Adulthood)	−.103*	.028	−.108*	−.033	.252**	−.062	.222**	−.049	.135*	.104*	.134*	.080	.327**	.389**	--	1.14 (.654)

Note.

* is $p < .05$.

** is $p < .01$.

Table 2

Model fit for Growth Mixture Models

	AIC	BIC	aBIC	entropy	LMR LRT	B-LRT	Smallest Class Size
1	4458.5	4498.14	4496.57	--	--	--	--
2	3740.08	3800.56	3749.77	0.76	< .01	< .01	293 (48.4%)
3	3459.42	3560.74	3487.72	0.73	0.01	< .01	155 (25.62%)
4	3401.25	3533.41	3438.16	0.69	0.15	< .01	110 (18.18%)
5	3381.1	3544.09	3426.63	0.7	0.07	0.01	10 (1.65%)

Table 3

Latent trajectory classifications

k	Intercept	Slope	Classification	n (%)
1	1.609 *	0.016	High-Stable	138 (22.81%)
2	0.900 *	−0.106	Moderate-Declining	207 (34.22%)
3	0.259 *	0.134 *	Low-Rising	110 (18.18%)
4	0.195 *	−0.041	Low-Stable	150 (24.79%)

* $p < .05$

Table 4

Multinomial Logistic Regression

High-Stable	***b***	**OR**	***s.e.***	***p***
Male	1.396	4.040	.425	< .001
High School Graduate	−.405	.667	.508	.425
More than High School	−.254	.776	.576	.659
Employed Full/Part Time	−1.208	.299	.480	.012
Private Regard	−.397	.672	.213	.062
Public Regard	−.405	.667	.256	.114
Racial centrality	.465	1.592	.225	.038
Low-Rising	***b***	**OR**	***s.e.***	***p***
Male	.020	1.020	.542	.971
High School Graduate	−.225	.799	.706	.750
More than High School	.080	1.083	.743	.914
Employed Full/Part Time	−1.188	.305	.610	.051
Private Regard	−.029	.971	.230	.898
Public Regard	−.005	.995	.363	.989
Racial centrality	.433	1.541	.316	.171
Moderate-Declining	***b***	**OR**	***s.e.***	***p***
Male	.471	1.602	.404	.243
High School Graduate	−.459	.632	.524	.381
More than High School	−.199	.820	.596	.739
Employed Full/Part Time	−.386	.680	.509	.448
Private Regard	−.562	.570	.218	.010
Public Regard	.014	1.014	.251	.957
Racial centrality	.499	1.647	.219	.022

Note. OR = Odds Ratio. Reference class is the low-stable class.

Table 5

Psychological Outcomes Across Racial Discrimination Trajectories

Psychological Outcomes	High-Stable	Moderate-Declining	Low-Rising	Low-Stable
Anxiety Symptoms	0.321	0.451[a]	0.180	0.163[a]
Depressive Symptoms	0.475	0.651[a]	0.443	0.345[a]
Perceived Lack of Control	1.320	1.422[a,b]	1.071[a]	1.153[b]

Note. Matching superscripts denotes a significant difference between trajectory classifications.

Table 6

Attrition Analysis

Chi-square Tests	χ^2	**df**	***p***
Sex	11.52	1	< .01
Educational Attainment	4.44	2	.11
Employment Status	1.15	1	.28
***t*-Test**	***t***	***df***	***p***
Private Regard	0.74	431	.46
Public Regard	0.66	440	.51
Centrality	0.88	435	.38
Baseline Depressive Symptoms	1.72	470	.09
Baseline Anxiety Symptoms	1.615	466	.11
Baseline Perceived Lack of Control	.911	471	.36
Discrimination Wave 5	−1.28	464	.20
Discrimination Wave 6	−0.60	503	.55
Discrimination Wave 7	−1.00	447	.32
Discrimination Wave 8	0.61	467	.54