



Full length article

The association between racial and socioeconomic discrimination and two stages of alcohol use in blacks

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ARTICLE INFO

Keywords:

African American
Discrimination
Socioeconomic Status
Alcohol

ABSTRACT

Background: This study aimed to characterize the associations of racial and socioeconomic discrimination with timing of alcohol initiation and progression from initiation to problem drinking in Black youth.

Methods: Data were drawn from a high-risk family study of alcohol use disorder. Mothers and their offspring ($N = 806$; $M_{age} = 17.87$, $SD_{age} = 3.91$; 50% female) were assessed via telephone interview. Cox proportional hazards regression analyses were used to examine associations between discrimination and timing of first drink and progression from first drink to problem drinking in two separate models. Predictor variables were considered in a step-wise fashion, starting with offspring racial and socioeconomic discrimination, then adding (2) maternal racial and/or socioeconomic discrimination experiences; (3) religious service attendance and social support as potential moderators; and (4) psychiatric and psychosocial risk factors and other substance use.

Results: Offspring racial discrimination (HR: 2.01, CI: 1.17–3.46 $\leq$ age 13) and maternal experiences of discrimination (HR: 0.79, CI: 0.67–0.93) were associated with timing of initiation in the unadjusted model only; offspring socioeconomic discrimination predicted timing of initiation among female offspring, even after adjusting for all covariates (HR: 1.49, CI: 1.14–1.93). Socioeconomic discrimination predicted a quicker transition from first use to problem drinking exclusively in the unadjusted model (HR: 1.70, CI: 1.12–2.58 $\leq$ age 18). No moderating effects of religious service attendance or social support were observed for either alcohol outcome.

Conclusions: Findings suggest socioeconomic discrimination is a robust risk factor for initiating alcohol use in young Black female youth and should be considered in the development of targeted prevention programs.

1. Introduction

Although Blacks have higher abstention rates and delayed onset of alcohol use relative to other ethnic groups (Anthony et al., 1994; Hasin et al., 2007; McKinney and Caetano, 2014), Black drinkers experience among the highest rates of alcohol-related problems at the same level of exposure (Caetano, 1997; Caetano and Kaskutas, 1996; Galvan and Caetano, 2003; Jones-Webb, 1998; Mulia et al., 2009; Witbrodt et al., 2014). This disparity in alcohol-related consequences is suggestive of risk pathways for developing alcohol problems among Blacks that are not well represented in current etiological models of problem drinking, which have been developed primarily on samples of Whites. Psychosocial factors of particular relevance to Blacks - such as racial

discrimination - need to be considered to better understand alcohol-related risk pathways.

This study draws on the Transactional Model of Stress and Coping (Lazarus and Folkman, 1987), which identifies drinking alcohol as one approach to cope with stress, and Minority Stress Models (Clark et al., 1999; Harrell, 2000), which posit that disadvantaged individuals experience additional stress related to their disadvantaged status (e.g., discrimination). We further draw from the Stress Process Model (Pearlin and Schooler, 1978), which suggests that effective coping is not evenly distributed in society, with disadvantaged groups being less likely to use efficacious approaches (e.g., drinking alcohol).

Extensive evidence suggests experiences of racial discrimination are associated with increased alcohol involvement among Blacks (Zapolski

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<https://doi.org/10.1016/j.drugalcdep.2019.02.026>

Received 9 August 2018; Received in revised form 13 February 2019; Accepted 16 February 2019

Available online 23 April 2019

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et al., 2014). For example, racial discrimination has been linked to increased binge and heavy drinking (e.g., Hurd et al., 2014; Kwate et al., 2010; Terrell et al., 2006) and alcohol-related problems (e.g., Boynton et al., 2014; Broman, 2007; Hunte and Barry, 2012). However, the findings are mixed, with several studies finding no relation between racial discrimination and alcohol outcomes (e.g., Chavez et al., 2015; Grekin, 2012; Tobler et al., 2013). These inconsistencies suggest further investigation of the link between racial discrimination and alcohol use and misuse among Blacks is needed.

Racial discrimination is the most common form of discrimination studied (Gilbert and Zemore, 2016). However, Blacks' experiences of discrimination are not limited to racial discrimination. Socioeconomic discrimination (being thwarted, harassed, or made to feel subordinate because of one's social class or economic standing; Krieger, 2005), may also be commonly experienced by Blacks, given their overrepresentation among those with low socioeconomic status (SES; Williams, 1999; Williams et al., 2010; Zemore et al., 2018). Socioeconomic discrimination has been linked to depression (Belle and Doucet, 2003; Canady et al., 2008) and sleep outcomes (Van Dyke et al., 2016); however, no study has investigated the association between socioeconomic discrimination and alcohol outcomes.

When examining the impact of discrimination on alcohol use risk among Black youth, we can also gain a broader perspective by considering other factors that might impact this relation, such as parental experiences of discrimination, religious involvement, and social support. Parental experiences of discrimination may be an indicator of offspring racial socialization (the process of preparing children for racism; Anderson and Stevenson, 2019; Spencer, 1983; Hughes et al., 2006). Prior research suggests that racial socialization may buffer the effects of racial discrimination on alcohol use (Neblett et al., 2010). Although prior research suggests a link between parental experiences of discrimination and offspring internalizing and externalizing symptoms (Tran, 2014) and suicidality (Arshanapally et al., 2017), no study has investigated the impact of parental experiences of discrimination on offspring alcohol use. Religious involvement is also a known protective factor against problem drinking (e.g., Heath et al., 1999; Meyers et al., 2017; Zapolski et al., 2014), and has been found to moderate the relation between discrimination experiences and alcohol outcomes (Henderson, 2017). Similarly, there is evidence that social support reduces the impact of discrimination experiences on alcohol use (Gerrard et al., 2017; Pascoe and Richman, 2009). Thus, religious involvement and social support were included as potential moderators in this study.

The research to-date on racial discrimination and alcohol outcomes has not considered the association of discrimination with the timing of drinking behaviors or progression through stages of alcohol use. Breaking down the multi-stage risk-pathway from alcohol initiation to the development of problem drinking (Sartor et al., 2007) can inform targeted interventions. Identifying the points in drinking course where discrimination may be most impactful can guide intervention efforts toward those critical periods where they may be most effective. The goal of the present study was to characterize the association of experiences of racial and socioeconomic discrimination with the timing of two stages of alcohol use: initiation and the progression from first use to problem drinking in Black youth, in the context of known risk factors and potential protective factors.

2. Methods

2.1. Participants

Participants were drawn from the Missouri Family Study, a high-risk study of alcohol use disorder (AUD)-related conditions, conducted from 2003–2009. Two ascertainment strategies were used to identify high-risk AUD families. First, eligible families with one index child aged 13, 15, 17, or 19 years and one or more full siblings were identified through Missouri birth records. Biological mothers completed a brief phone

Table 1

Sample characteristics and prevalence of psychiatric, substance use and psychosocial factors ($N = 806$).

Family Risk Group		
Low – consistently identified as low	35.98%	
False positive – initially identified as high	8.81%	
High – consistently identified as high	22.83%	
False negative – initially identified as low	4.84%	
Very high – consistent based on DUI records	27.54%	
Demographic Factors		
Female	50.00%	
Age: mean (SD) baseline	17.87 (3.91)	
last interview	21.54 (4.44)	
Household Income		
low (\$0–29,999)	53.99%	
medium (\$30,000–49,999)	19.45%	
high (\$50,000 or higher)	26.56%	
Maternal education level		
< high school	10.79%	
high school only (including GED)	30.02%	
> high school	58.93%	
Paternal education level		
< high school	16.38%	
high school (including GED)	47.52%	
> high school	29.65%	
Psychosocial Protective Factors at Stage of Use	1 st drink	Problem drinking
Past year religious service attendance: $\geq$ weekly	40.25%	36.94%
Sibling support: high	79.01%	78.04%
Friend support: high	73.29%	72.70%
Lifetime Psychosocial/Psychiatric Risk Factors		
Maternal alcohol problems	26.92%	
Childhood sexual abuse	14.77%	
Physical abuse/harsh punishment	67.49%	
Ever smoke a cigarette	62.11%	
Regular cigarette smoking	29.03%	
Cannabis use	56.45%	
Major depressive disorder	16.81%	
DSM-IV conduct disorder	12.28%	

Note. Family Risk Group was determined based on father's drinking history. ^a includes harsh physical punishment.

screen assessing family risk for AUD. If the mother reported the biological father had a history of excessive drinking, the family was classified as “high-risk;” all other families were classified as “low-risk.” The second ascertainment strategy was based on data from both birth records and state driving records to identify children in the target age range with biological fathers who had two or more drunk driving convictions; these families were classified as “very high-risk.” Risk status was re-evaluated after biological mothers completed comprehensive interviews that covered the biological father's AUD symptoms, which led to a small number of families being reclassified, as shown in Table 1. High-risk families where fathers did not meet AUD criteria were reclassified as false positives, and low-risk families where fathers met AUD criteria were re-categorized as false negatives. Very high-risk status did not change, as it was based on DUI records.

Biological mothers were asked permission to contact the index child and up to two full siblings after completing their interviews. Offspring for whom maternal permission was obtained were contacted, and only those who themselves consented to participate were interviewed. Biological fathers were also solicited for interviews. A total of 450 Black families and 317 non-Black families participated in the study, with enrollment occurring over 6 years. Four waves of data were collected at two-year intervals for three of the intake years, whereas the remaining intake years had 1–2 waves of data. Seventy-five percent of participants provided data at two or more waves. In total, 1461 offspring completed at least one interview. The sample in the present paper was based on the Black subset of the larger sample ($N = 806$, 50% female, baseline $age_{mean} = 17.87$ [SD = 3.91] and last follow-up $age_{mean} = 21.54$

[SD = 4.44]; Table 1).

2.2. Measures and study procedures

Substance use history, psychiatric disorders based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994) criteria, related psychosocial experiences (e.g., childhood maltreatment), and demographic characteristics were assessed using an adaptation of the Semi-Structured Assessment for the Genetics of Alcoholism (SSAGA; Bucholz et al., 1994; Hesselbrock et al., 1999) for telephone administration. Informed consent and offspring assent (if under 18 years) were obtained prior to data collection. All study procedures were approved by the Washington University School of Medicine Human Research Protection Office and the Ethics Board of the Missouri Department of Health and Senior Services.

2.2.1. Racial and socioeconomic discrimination

The Experience of Discrimination scale (Krieger et al., 2005) was used to assess racial and socioeconomic discrimination in offspring and mothers. Racial discrimination was queried with the question: “Have you ever experienced racial discrimination (that is because of your race or color), (been prevented from doing something, or been hassled or made to feel inferior in any of the following situations)?” Socioeconomic discrimination was assessed with the question: “Because of your social class (that is your social or economic class) have you ever experienced discrimination, (been prevented from doing something, or been hassled or made to feel inferior in any of the following situations)?” For both questions, seven situations were referenced: at school, getting a job, at work, at home, getting medical care, on the street or in a public setting, and from the police or in the courts. Frequency and level of distress were also queried for each situation. Given our interest in any degree of exposure and the nearly universal endorsement of distress, irrespective of frequency or distress level, racial and socioeconomic discrimination were coded dichotomously as present or absent. Maternal experiences of socioeconomic and racial discrimination were highly correlated ($r=0.83$) so a 3-level variable representing endorsement of both, one form, or neither.

2.2.2. Alcohol outcomes

Alcohol initiation was operationalized as the age offspring first reported consuming a full standard drink (if reported in more than one interview, we used the first report, assuming higher accuracy in closer proximity to the event). Problem drinking was defined as the endorsement of at least one DSM-5 (American Psychiatric Association, 2013) AUD criterion. Craving was not assessed because the data were collected prior to the publication of the DSM-5. To be consistent with DSM-5 criteria, legal problems were excluded. Given the evidence for over-endorsement of tolerance among young drinkers (Chung et al., 2001; Martin, Chung et al., 2006), which was also observed in the current sample, problem drinking status was defined as endorsement of at least one AUD criterion other than tolerance.

2.2.3. Potential moderators

Religious service attendance was assessed with the question ‘In the past 12 months, how often did you attend religious services?’ For ease of interpretation, it was coded dichotomously, using the common definition of regular attendance as weekly or more frequently vs. less than weekly. Social support was assessed separately for siblings and friends and coded dichotomously as high (vs. low to average) if participants endorsed “a lot” for any of the following questions: “How much can you call on your [friend or sibling] for help if you have a serious problem?” “How much can you open up to your [friend or sibling] if you need to talk about your worries?” and “How much does your [friend or sibling] really understand the way you feel about things?”

2.2.4. Lifetime psychosocial factors, substance use, and psychiatric risk factors

Childhood maltreatment and a range of psychiatric and substance use risk factors associated with early and problem alcohol use (Afifi et al., 2012; Grant et al., 2015) were also included in the models: maternal alcohol problems (based on maternal self-report of any DSM-IV AUD criteria or offspring endorsement of mother’s excessive drinking), cannabis use, DSM-IV conduct and major depressive disorders, childhood sexual abuse (< age 16), and childhood physical abuse/harsh physical punishment (< age 16). The somewhat high rate of physical abuse/harsh physical punishment likely reflects the relatively normative use of harsh forms of punishment in Black families (Gershoff, 2002). Cigarette smoking was also included in the models, as any in the initiation model and regular smoking, i.e., < 20 cigarettes lifetime and at least weekly for two or more months, in the problem drinking model. Age at time of onset was reported for all risk factors other than maternal alcohol problems.

2.2.5. Indicators of socioeconomic status

Socioeconomic status was indexed by paternal and maternal level of education (< 12 years, 12 years, and > 12 years) and maternal report of family income (< \$30,000, \$30,000–\$75,000, and > \$75,000).

2.3. Data analysis

Cox proportional hazards (PH) regression analyses were conducted to predict timing of alcohol initiation and progression from first drink to problem drinking as a function of racial and socioeconomic discrimination. This survival analysis approach accounts for the possibility that participants may not have passed through the period of risk, and thus is well suited for a sample of adolescents and young adults. First drink was used as the starting point in the problem drinking models, which adjusted for the distribution of age at first drink: ≤ 14 , 15–16, and ≥ 17 . Variables representing socioeconomic status and maternal problem drinking history were time-invariant. To ensure that only factors that preceded alcohol outcomes were treated as predictors, risk factors were entered as time-varying covariates. While age at first discrimination experience was not obtained, discrimination was only coded as present in the models if they preceded or were reported in the same wave as the alcohol outcome. Social support and religious service attendance were derived from reports at the same wave as the alcohol outcome.

Cox pH regression analyses were conducted in Stata (Statacorp, 2007), using the cluster sandwich estimator to account for non-independence of observations among siblings. Violations of the pH assumption that risk remains constant over time were resolved by splitting the risk period and estimating hazards ratios for each period. Analyses were conducted in steps for each alcohol outcome. All models were adjusted for age, family-risk status (i.e., father’s drinking history), household income, and parental education levels and involved testing for interactions between sex and each form of offspring discrimination. Model 1 included offspring racial and socioeconomic discrimination, sex, and maternal history of problem drinking. Model 2 included variables in Model 1 as well as maternal experiences of discrimination. In Model 3, social support, religious service attendance, and terms representing their interactions with discrimination variables were added to Model 2 variables. In the interest of developing the most parsimonious model, the final model did not include Model 3 variables, as none were significant. Thus, the final model included all Model 2 variables, with the addition of psychosocial factors, substance use, and psychiatric risk factors.

3. Results

Prevalence of discrimination experiences, alcohol outcomes, and timing of alcohol stages are reported in Table 2. Sixty-two percent of

Table 2
Discrimination and alcohol outcomes by sex.

	Female <i>n</i> = 403	Male <i>n</i> = 403	Total <i>N</i> = 806
Lifetime offspring discrimination			
Racial	59.31%	65.26%	62.28%
Socioeconomic	22.83%	29.78% ^a	26.30%
Lifetime maternal discrimination			
One type: either racial or socioeconomic	28.54%	33.25%	30.89 %
Both racial and socioeconomic	34.49%	33.25%	33.87%
Alcohol outcomes			
Consumed full alcoholic drink	76.92%	75.62%	76.27%
Age at first full drink (Mean [SD])	17 (2.78)	16.28 (2.79)	16.64 (2.80)
Problem drinking (among drinkers)	41.69%	44.67%	43.18%
Age of onset of problem drinking (Mean [SD])	18.51 (2.75)	18.07 (2.49)	18.28 (2.62)
Timing of transition from 1 st drink to problem drinking			
Same year	23.40%	24.05%	23.75%
1 year	18.44%	16.46%	17.39%
2-3 years	36.88%	34.81%	35.79%
4+ years	21.28%	24.68%	23.08%

Note. SD = standard deviation. The majority of mothers who endorsed only one type of discrimination endorsed racial discrimination. ^a = significant ($p < .05$) sex difference.

offspring reported experiencing racial discrimination and 26% reported experiencing socioeconomic discrimination. Endorsement of socioeconomic discrimination was higher in males ($\chi^2 = 5.03$, $p = 0.02$) than females. Thirty-four percent of mothers endorsed both racial and socioeconomic discrimination; 34% endorsed one of the two. Most offspring reported consuming at least one full drink (76%), with a mean age at first drink of 16.64 ($SD = 2.80$) years. Approximately 80% of participants who developed problem drinking did so within three years of their first drink, nearly 40% within one year.

3.1. Initiation of alcohol use

Results of regression analyses predicting initiation of alcohol use are

Table 3
Results of Cox proportional hazards regression analyses predicting initiation of alcohol use.

	Model 1 HR (95% CI)	Model 2 HR (95% CI)	Final Model HR (95% CI)
Offspring discrimination			
Racial			
alcohol use initiation $\leq$ age 13	1.97 (1.15-3.39)	2.01 (1.17-3.46)	1.04 (0.88-1.24)
alcohol use initiation $\geq$ age 14	0.95 (0.81-1.13)	0.96 (0.81-1.13)	
Socioeconomic*			
Female	1.41 (1.07-1.86)	1.42 (1.07-1.88)	1.49 (1.14-1.93)
Male	0.83 (0.62-1.12)	0.81 (0.60-1.09)	0.77 (0.57-1.06)
Female	0.81 (0.69-0.95)	0.79 (0.67-0.93)	0.91 (0.76-1.09)
Maternal history of problem drinking	1.15 (0.96-1.38)	1.18 (0.98-1.41)	1.06 (0.89-1.26)
Maternal discrimination			
One type: racial or socioeconomic	–	0.80 (0.65-0.99)	0.83 (0.67-1.02)
Both racial and socioeconomic	–	0.82 (0.68-1.00)	0.86 (0.71-1.03)
Lifetime psychosocial/psychiatric risk factors			
Ever smoke			
alcohol use initiation $\leq$ age 13	–	–	5.62 (3.17-9.96)
alcohol use initiation $\geq$ age 14	–	–	1.50 (1.26-1.78)
Cannabis use	–	–	2.37 (1.98-2.83)
Major depressive disorder	–	–	1.18 (0.91-1.53)
Conduct disorder	–	–	1.15 (0.89-1.50)
Childhood physical abuse/harsh punishment or neglect	–	–	1.13 (0.95-1.33)
Childhood sexual abuse	–	–	0.86 (0.70-1.06)

Note. HR = Hazards ratio. 95% CI = 95% confidence intervals. *Separate estimates were generated for females and males, given the significant gender x socioeconomic discrimination interaction. All models were adjusted for age, risk group (i.e., father's drinking history), household income, and maternal and paternal education level. None of the protective factors (i.e., religious involvement, social support from friends, and social support from siblings) or their interactions with discrimination variables were significant, so they are not included in the final model.

shown in Table 3. A significant interaction effect was observed between sex and offspring socioeconomic discrimination, so the hazard ratios (HRs) were estimated separately by sex. Experiences of socioeconomic discrimination in female but not male participants were associated with increased risk for alcohol initiation, and these associations remained significant after accounting for maternal discrimination and other covariates (HR: 1.42 [95% CI: 1.07–1.88]). Offspring racial discrimination (split at age 14 to account for pH violations) was associated with increased risk for alcohol initiation before age 13 in Model 2 (HR: 2.01 [95% CI: 1.17–3.46]), but were non-significant across ages in the final model. Mother's experiences of discrimination predicted lower hazards of alcohol initiation among offspring in Model 2 (HR: 0.80 [95% CI: 0.65–0.99]), but were non-significant in the final model. As indicated earlier, neither main effects nor interactions with offspring discrimination were observed for religious service attendance or social support (see Supplemental Table 1). Cigarette smoking (with age interactions to account for pH violations; HR [≤ 13]: 5.62 [3.17–9.96] and HR [≥ 14]: 1.50 [1.26–1.78]) and cannabis use (HR: 2.37 [95% CI: 1.98–2.83]) were also significantly associated with initiation.

3.2. Progression from first drink to problem drinking

Results of regression analyses predicting progression from first drink to problem drinking are reported in Table 4. Offspring socioeconomic discrimination was associated with an elevated rate of progression from first drink to problem drinking before age 18, and this effect remained after accounting for maternal discrimination experiences (Model 2 HR: 1.70 [95% CI: 1.12–2.58]), but not in the final model. No main or interaction effects with offspring discrimination were found for religious service attendance or social support (See Supplemental Table 2). Cannabis use (with age interactions to account for pH violations; HR [≤ 18]: 3.43 [95% CI: 2.18–5.41]) was associated with a more rapid transition from first drink to problem drinking.

4. Discussion

The present study expanded on existing research on the link between discrimination and drinking behaviors among Black youth by

Table 4

Results of Cox proportional hazards regression analyses predicting timing of transition from first drink to onset of problem drinking.

	Model 1	Model 2	Final Model
	HR (95% CI)	HR (95% CI)	HR (95% CI)
Offspring discrimination			
Racial	0.99 (0.75–1.30)	0.99 (0.75–1.31)	0.88 (0.65–1.18)
Socioeconomic			
problem drinking onset ≤ age 18	1.59 (1.12–2.24)	1.70 (1.12–2.58)	1.31 (0.93–1.85)
problem drinking onset ≥ age 19	0.94 (0.58–1.52)	1.02 (0.71–1.48)	0.84 (0.50–1.44)
Female			
problem drinking onset ≤ age 18	0.83 (0.64–1.06)	0.79 (0.61–1.02)	1.24 (0.87–1.76)
problem drinking onset ≥ age 19			0.65 (0.43–0.97)
Maternal history of problem drinking	1.16 (0.88–1.52)	1.16 (0.88–1.53)	1.11 (0.82–1.49)
Maternal discrimination			
One type: racial or socioeconomic	–	0.92 (0.69–1.22)	0.97 (0.72–1.32)
Both racial and socioeconomic	–	0.82 (0.61–1.11)	0.97 (0.72–1.32)
Lifetime psychosocial/psychiatric risk factors			
Regular smoking	–	–	1.63 (1.23–2.16)
Cannabis use			
problem drinking onset ≤ age 18	–	–	3.43 (2.18–5.41)
problem drinking onset ≥ age 19			1.39 (0.89–2.16)
Major depressive disorder	–	–	1.03 (0.74–1.45)
Conduct disorder	–	–	1.07 (0.73–1.57)
Childhood physical abuse/harsh punishment or neglect	–	–	1.11 (0.82–1.50)
Childhood sexual abuse	–	–	1.03 (0.72–1.48)

Note. HR = hazards ratio. 95% CI = 95% confidence interval. All models were adjusted for age, risk group (i.e., father's drinking history), age at first drink, household income, and maternal and paternal education level. None of the protective factors (i.e., religious involvement, social support from friends, and social support from siblings) or their interactions with discrimination variables were significant, so they are not included in the final model.

examining socioeconomic as well as racial discrimination and considering maternal discrimination experiences in relation to the progression through two stages of alcohol use. These findings inform etiologic models of problem drinking among Black youth by highlighting the relevance of socioeconomic in addition to racial discrimination, potential sex differences in their impact on alcohol involvement, and variations in the impact of discrimination across stages of use. They also suggest potential targets for alcohol prevention efforts in Black youth.

We found evidence for racial discrimination as a risk factor for alcohol initiation before age 14, which is broadly consistent with several prior studies examining racial discrimination and alcohol-related outcomes (e.g., Boynton et al., 2014; Kwate et al., 2010; Terrell et al., 2006). However, racial discrimination was not an independent contributor to risk in the context of other well-established risk factors, including cigarette and cannabis use. Furthermore, we did not find evidence for the association of racial discrimination with progression from first drink to problem drinking. The inconsistency of the current findings with some prior literature may be attributable to substantial differences between our study and previous work, namely our examination of different phenotypes (timing of the transitions vs. quantity/frequency of consumption and binge drinking), use of a high-risk family design, and adjustment for a wide range of risk factors. Notably, multiple prior studies have failed to find support for links between racial discrimination and alcohol outcomes (e.g., Chavez et al., 2015; Grekin, 2012; Tobler et al., 2013).

With respect to socioeconomic discrimination, the current study, the first known to investigate its relation to alcohol outcomes, revealed that, even after accounting for correlated risk factors, socioeconomic discrimination is associated with elevated likelihood of initiating alcohol use among female – but not male – Black youth. These findings suggest socioeconomic discrimination may operate differently from racial discrimination, which has been associated with substance use to a greater degree among males than females in prior studies (Brodish et al., 2011; Buccianeri et al., 2014). Although a larger proportion of males than females in this sample endorsed socioeconomic discrimination, females reported higher levels of discrimination related distress ($\chi^2 = 3.94$, $p = .047$). It is possible that socioeconomic discrimination is more impactful among Black females, who also

experience discrimination due to their gender. The potential compounding effect of gender-based discrimination (e.g., Thoits, 2010; Williams and Collins, 1995; Williams, 1999) might increase the likelihood of alcohol initiation among female Black youth. Additional research is needed to further assess this possibility.

Similar to the racial discrimination and first drink findings, socioeconomic discrimination was associated with rapid progression from alcohol initiation to the development of problem drinking before age 18 in the unadjusted model but in the end, did not independently contribute to risk in the context of other well-documented risk factors. The distinctions in the findings across alcohol outcomes highlight the importance of investigating stages of alcohol use, which provides a more precise way of identifying how discrimination may impact various levels of alcohol involvement and ascertaining at which point interventions might be most beneficial. The findings from the current study indicated that prevention efforts targeting discrimination as a risk factor would be most impactful early in the period of risk for alcohol initiation, addressing socioeconomic discrimination, particularly among Black female youth.

Despite evidence that religious involvement and social support buffer the effects of discrimination on health outcomes (Brondolo et al., 2009; Henderson, 2017; Pascoe and Richman, 2009), neither were significant moderators in the current study. It is possible that social support, as measured here, is relatively stable and youth do not seek additional social support after experiencing discrimination. Future investigations could benefit from a more comprehensive assessment of social support, explicitly asking how Blacks cope with discrimination experiences in general and whether social support is sought specifically as a means of coping. The lack of moderation of racial discrimination by religious service attendance in this study is consistent with another study investigating potential moderating effects in relation to binge drinking among Blacks (Caldwell and Takahashi, 2014). It is possible that people do not attend religious services more frequently to cope with experiences of discrimination, or they engage in other religious activities (e.g., praying) that were not assessed in the current study. Thus, future research may consider using a broader assessment of religious involvement, including questions about religious coping. Additionally, investigators may consider how social support and religious involvement interact to impact the relation between discrimination and

alcohol use.

4.1. Limitations

Several limitations, in addition to those previously mentioned should be noted. First, these findings may not generalize to middle to older aged adults, given that adolescents and young adults are early in their identity development and, thus may perceive discrimination differently than they might later in life (Sellers and Shelton, 2003). Second, we used a high-risk sample from a single Midwestern state and the degree to which these results generalize to other regions, including those where religious orientation might be lower, is unknown. Further, the sample was enriched not only for increased vulnerability to alcohol problems through paternal AUD, but also for disorders comorbid with AUD, which might have implications for the number and occurrences of offspring discriminatory experiences as well as for offspring response to such experiences, both of which might differ for individuals from a lower risk population. Third, our SES indicators did not capture other important components of social class (e.g., social mobility, social capital, subjective social status; Destin and Debrosse, 2017; Diemer et al., 2013; Shiell et al., *In Press*). Fourth, the current study did not capture the wide range of factors that may provide context for discrimination experiences (e.g., identity development, socialization). Similarly, inferences cannot be drawn about mechanisms, such as racial socialization, that may underlie intergenerational transmission of discrimination experiences by simply querying whether mothers experienced discrimination. Fifth, although steps were taken to minimize potential retrospective reporting bias, including collecting data at multiple waves and using first report, the inherent limitations of retrospective assessments should be considered. Finally, the precise ordering of discrimination experiences relative to alcohol outcomes could not be determined.

4.2. Future directions and implications

Our findings inform future work in this area. First, despite the high co-occurrence of racial and socioeconomic discrimination, their associations with alcohol outcomes are distinct among Black youth and should be assessed independently in future investigations. However, the higher correlation among mothers than offspring perceptions of racial versus socioeconomic discrimination indicates age-related or generational differences that need to be accounted for when using a sample with a wider age range. Second, given that caregivers who have experienced discrimination themselves might be more likely to prepare their children for such experiences, it is critical that future studies include a comprehensive assessment of all caregivers' experiences of discrimination and the mechanisms (e.g., racial socialization) impacting offspring substance use (Neblett et al., 2010). Black youth who are socialized to be cognizant of racial bias may learn they are more likely to suffer negative consequences (e.g., school suspension, arrest for underage drinking) than youth from other racial backgrounds. This socialization might protect against risk for engaging in alcohol use (e.g., Grindal and Nieri, 2016) conferred by experiences of discrimination. Third, given that socioeconomic discrimination was only associated with alcohol initiation in females, future research is warranted to examine if similar sex differences are apparent in Whites and other races. Finally, existing research provides evidence that strong ethnic identity buffers the impact of discrimination on risky alcohol use (e.g., Fuller-Rowell et al., 2012; Gibbons et al., 2016; Stock et al., 2013, 2011); therefore, future research should investigate the impact of other types of identity (e.g., social class, sexual orientation, gender, religion) on the relation between other forms of discrimination and problematic substance use.

Contributors

All six authors were personally and actively involved in substantive work leading to the report and will hold themselves jointly and individually responsible for its content. Each author has approved the final manuscript.

Role of funding sources

Funding for this study was provided by the National Institute on Alcohol Abuse and Alcoholism (R01 AA012640, R01 AA023549) and the National Institute on Drug Abuse (T32 DA15035, T32 DA019426). The National Institutes of Health did not play a role in the study design, collection, analysis, interpretation of the data, writing the manuscript, or the decision to submit the manuscript for publication.

Conflicts of interest

No conflict declared.

Acknowledgements

We thank all the research participants and their families for the time they dedicated to this study.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.drugalcdep.2019.02.026>.

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