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# **Everyday Discrimination and Mood and Substance Use Disorders: A Latent Profile Analysis with African Americans and Caribbean Blacks**

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### **Abstract**

Perceived discrimination is a major source of health-related stress. The purpose of this study was to model the heterogeneity of everyday-discrimination experiences among African American and Caribbean Blacks and to identify differences in the prevalence of mood and substance use outcomes, including generalized anxiety disorder, major depressive disorder, alcohol-use disorder, and illicit drug-use disorder among the identified subgroups. The study uses data from the National Survey of American Life obtained from a sample of African American and Caribbean Black respondents (N = 4,462) between 18 and 65 years. We used latent profile analysis and multinomial regression analyses to identify and validate latent subgroups and test hypotheses, yielding 4 classes of perceived everyday discrimination: Low Discrimination, Disrespect and Condescension, General Discrimination, and Chronic Discrimination. Findings show significant differences exist between the Low Discrimination and General Discrimination classes for major depressive disorder, alcohol-use disorder, and illicit drug-use disorder. Moreover, we find significant differences exist between the Low Discrimination and Chronic Discrimination classes for the four disorders examined. Compared with the Chronic Discrimination class, members of the other classes were significantly less likely to meet criteria for generalized anxiety disorder, major depressive disorder, alcohol-use disorder, and illicit drug-use disorder. Findings suggest elevated levels of discrimination increase risk for mood and substance-use disorders. Importantly, results suggest the prevalence of mood and substance-use disorders is a function of the type and frequency of discrimination that individuals experience.

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### Keywords

discrimination; Blacks; generalized anxiety disorder; major depressive disorder; substance use disorders; depression

An often overlooked but major source of health-related stress stems from perceived discrimination (Whitbeck, Hoyt, McMorris, Chen, & Stubben, 2001), the effects of which are comparable to other major stressors such as death of a loved one, divorce, or job loss (Kessler, Mickelson, & Williams, 1999). Evidence suggests a powerful link exists between experiences of discrimination and mood and substance-use disorders among racial/ethnic minority populations in the United States, including African Americans and Caribbean Blacks (Gibbons, Gerrard, Cleveland, Willis, & Brody, 2004; Seaton, Caldwell, Sellers, & Jackson, 2008). In particular, studies have highlighted the direct relationship between discrimination and both anxiety (Gaylord-Harden & Cunningham, 2009) and depressive disorders (Schulz et al., 2006). Recent research with a large sample of African Americans and Caribbean Blacks demonstrated the association between discrimination and higher odds of lifetime anxiety disorders (Soto, Dawson-Andoh, & BeLue, 2011), although the association was significant only for African Americans. Similarly, perceived discrimination has been shown to be positively associated with depression among African American and Caribbean Black adults (Clark, 2014; Schulz et al., 2006). This association is noteworthy because anxiety disorders are the most common type of mental disorder in the United States (Kessler, Chiu, Demler, & Walters, 2005) and major depressive disorder is a leading cause of disease burden worldwide (Ferrari et al., 2013).

The effects of perceived discrimination have also been linked with use of alcohol and illicit drugs in that substance use has been identified as a means of coping with the stress of everyday discrimination (Clark, 2014; Martin, Tuch, & Roman, 2003). For example, Hunte and Barry (2012) found every one unit increase in everyday discrimination predicted increases of alcohol- and drug-use disorders. Repeated or ongoing experiences of discrimination can be a chronic stressor, elevating distress and negative physical arousal, which in turn, can deplete psychological resources (Gee, Spencer, Chen, & Takeuchi, 2007) and lead to stress-sensitive disorders, such as generalized anxiety disorder, major depressive disorder, alcohol-use disorder, and illicit drug-use disorder (Hunte & Barry, 2012; Schulz et al., 2006; Soto et al., 2011).

Although an increasing amount of research has examined the effects of discrimination on mental and physical health, much of this research has conceptualized discrimination as a continuous construct. However, emerging research has suggested discrimination can manifest as a multifaceted, multidimensional phenomenon across four types of discrimination: *individual racism* (i.e., actions of a personal, degrading nature that promote inferiority beliefs among minority individuals), *cultural racism* (i.e., beliefs of the dominant group are regarded as superior to those of the subordinate group), *institutionalized racism* (i.e., systematic inequality based on race that is reinforced by differential access to societal resources, services, and opportunities), and *collective racism* (i.e., members of the dominant group work to restrict or deny basic rights and privileges of minority group members; Jones,

1997). Jones' (1997) conceptualization of individual racism can be referred to as *everyday discrimination*, meaning it is found in the normal course of events, and, in the same way that the larger domain of discrimination is heterogeneous, everyday discrimination can be heterogeneous.

# **Present Study**

The purpose of this study was to model the heterogeneity of everyday-discrimination experiences among African American and Caribbean Blacks and identify differences in the prevalence of mood and substance use outcomes, including generalized anxiety disorder, major depressive disorder, alcohol-use disorder, and illicit drug-use disorder among the identified subgroups. To our knowledge, this is the first study to examine classes of everyday discrimination. In addition, it is the first to compare prevalence of mood and substance-use disorders across latent subgroups of African Americans and Black Caribbeans distinguished by experiences of everyday discrimination. To address the limitations of previous research, the current study uses data from a national household probability sample of African Americans and Caribbean Blacks, offers extensive assessment of variables relating to discrimination across various domains, and well-validated measures of mood and substanceuse disorders. Data driven methods, such as latent profile analysis (LPA) and latent class analysis, offer an unbiased estimation of potential underlying subgroups in a population based on observed variables (Muthén & Asparouhov, 2006). Although the use of such methods is growing among researchers to identify latent population subgroups, to our knowledge, these methods have not been applied to identifying dimensions of discrimination. This innovative application of LPA might be a more accurate way of describing discrimination experiences. Although this study was exploratory in nature, based on previous research, we hypothesized the prevalence of mood and substance-use disorders would be greater among subgroups of African American and Caribbean Black adults who experienced higher levels of discrimination across multiple domains as compared with adults of similar race/ethnicity who experienced lower levels of discrimination.

# Method

### Sample and Procedures

Study findings are based on data from the National Survey of American Life (NSAL), which is a comprehensive survey of the mental health of the United States Black and non-Hispanic White populations (NSAL; Jackson et al., 2004). NSAL data were obtained between 2001 and 2003 from a nationally representative sample of non-institutionalized African American (n= 3,570), Caribbean Black (n=1,623), and non-Hispanic White (n=1,006) adults 18 years and older. Using the *Diagnostic and Statistical Manual, Fourth Edition (DSM-IV*; American Psychiatric Association, 2000), World Mental Health Composite Interview (WHO-CIDI), the NSAL gathered background data and extensive information about a range of mental disorders. The current study restricted analyses to African American and Caribbean Black respondents between 18 and 65 years (N= 4,462). Details of the NSAL sample and procedures are available elsewhere (Jackson et al., 2004).

### **Measures**

**Indicator variables**—We identified latent subgroups related to perceived discrimination based on nine indicator variables from the Everyday Discrimination Scale (Williams, Yu, Jackson, & Anderson, 1997). This scale was designed to measure the frequency of perceived discrimination across multiple domains. Sample items include "How often do you receive poorer service than others at restaurants or stores?" and "How often are you are threatened or harassed?" Response options use a 6-point scale of *never* (coded 1), *less than once a year* (2), *a few times a year* (3), *a few times a month* (4), *at least once and a week* (5), and a*lmost every day* (6).

**DSM-IV** mental disorders—A modified version of the WHO-CIDI (Kessler & Ustun, 2004) was used to examine four measures of lifetime mood and substance-use disorders known to be linked with discrimination: generalized anxiety disorder; major depressive disorder; alcohol-use disorder, defined as abuse or dependence on alcohol; and illicit druguse disorder, also defined as abuse or dependence. Consistent with the NSAL coding, each item was dichotomously scored (yes=1, no=0).

**Sociodemographic factors**—The following sociodemographic variables were included as indicator covariates in the latent profile analysis, and used as control variables in the multinomial regression analyses: age, gender, race/ethnicity, household income, and education level.

### Statistical Analyses

LPA and multinomial regression analyses were executed in successive steps to identify and subsequently validate latent subgroups. LPA is a statistical procedure that assigns individual cases to their most likely latent subgroups on the basis of observed data (McLachlan & Peel, 2000). Multinomial regression is a statistical procedure designed for nominal outcomes that contain categories that can be assumed to be unordered (Long & Freese, 2006).

Beginning with the LPA, we identified a sequence of latent profile models ranging from one to five classes by using Latent GOLD® 4.5 (Vermunt & Magidson, 2008) software. Five statistical criteria were used to identify the best fitting model: the Bayesian Information Criterion (BIC), Akaike's Information Criterion (AIC), Consistent Akaike's Information Criterion (CAIC), log likelihood, and entropy. In interpreting these criteria, lower BIC, AIC, and CAIC values and higher log likelihood values reflected better model fit. Higher entropy values indicated greater accuracy of the classification. In addition to these quantitative criteria, the parsimony and substantive interpretability of the latent class solutions also function as model selection criteria.

After identifying latent subgroups and assigning subjects to classes based on probability of membership, we used multinomial regression to predict class membership. This approach facilitated the examination of the ways in which experiencing various forms of discrimination could place individuals at risk for mood and substance use disorders. Results are presented in Tables 1 thru 3, with the class that reported the lowest level of discrimination used as the reference category; however, to fully elucidate the between-

classes differences, we conducted supplementary analyses in which all classes were sequentially examined as the reference category. Using multinomial regression, relative risk ratios (RRs) and 95% confidence intervals (CI) were estimated. RRs refer to the likelihood of membership in a particular class as compared with a specified reference class, and are akin to odds ratios when interpreting likelihood of class membership (Zhang & Yu, 1998). Statistical procedures involving multinomial regression models were conducted using Stata 13.1SE survey data functions (StataCorp, 2013).

### Results

### **Latent Profile Analysis**

As displayed in Table 1, the statistical criteria suggested a four-class solution was the best modeling of the heterogeneity of the data. Although the log likelihood, BIC, AIC, and CAIC values for the five-class solution were slightly superior to that of the four-class solution, these were relatively minor differences. The accelerated flattening of the fit statistics, in combination with the decrease in entropy values between the four-class (S = 85.97) and five-class (S = 80.59) solutions, suggested the addition of a fifth class would not be parsimonious. Moreover, the clear, coherent conceptual interpretability of the four-class solution provided further evidence for excluding the fifth class.

The four-class solution consisted of Class 1, labeled Low Discrimination (n = 771; 17.28%); Class 2, labeled Disrespect and Condescension (n = 756; 16.94%); Class 3, labeled General Discrimination (n = 2,277;50.03%); and Class 4, labeled Chronic Discrimination (n = 658;14.75%). Class 1 was characterized by very low levels of perceived discrimination across all domains, suggesting members of this class reported they rarely experienced discrimination (i.e., frequency between never and less than once a year). Class 2 was characterized by recurrent (i.e., a few times per year) experiences of disrespectful and condescending discrimination but virtually no experience of hostile or character-based discrimination. For example, the mean values for the variables *called names or insulted* (hostile discrimination) or viewed as dishonest (character-based discrimination) were 1.03 and 1.08, respectively (never experienced discrimination = 1). Class 3, which constituted the largest subgroup and accounted for more than half of the sample, was characterized by recurrent experiences of discrimination across all variables in the latent modeling. Last, Class 4 was characterized by frequent experiences of disrespectful, condescending, character-based, and hostile discrimination, with these forms of discrimination occurring with varying frequencies. Members of Class 4 reported experiencing disrespectful discrimination a few times per month, condescending forms at least once per week, and recurrent episodes of both character-based and hostile discrimination (i.e., a few times per year).

### **Characteristics of Latent Classes**

Table 2 shows the sociodemographic characteristics across the four latent classes, including mean values for age and household income as well as the percentages for gender, race/ethnicity, and education level. We observed significant differences with respect to age of class members (F= 29.66, p<.001), with the highest mean age found for Class 1 (M= 41.16 years, SD= 12.85) followed closely by Class 2 (M= 40.98, SD= 12.15). In contrast,

the mean values for age were markedly lower among members of Class 3 (M= 37.78, SD= 12.14) and Class 4 (M= 36.61, SD= 12.13). Significant differences between-class differences were also observed for gender ( $\chi^2$ = 115.67, p<.001), with Class 4 having the highest proportion of men (54.72%) and Class 2 having the lowest proportion of men (29.07%). In addition, significant differences were observed for household income (F = 23.29, p<.001) and education level (F = 39.27, P<.001). Class 3 had the highest mean family income (M= 39,473; SD= 32,315) and Class 1 reported the lowest mean level of family income (M= 30,346; SD= 25,345). Regarding education level, Class 3 stood out as having the highest mean number of years of education (M = 13.09, SD = 2.30). No significant differences were found between classes on ethnicity.

Table 3 displays the associations between mood and substance-use disorders and membership in the latent classes, with Class 1 serving as the reference class. Figures 2 and 3 display the prevalence estimates for mood and substance-use disorders by latent class. A relatively consistent pattern emerged in the mood and substance-use disorders identified across the latent classes. With the exception of alcohol-use disorder (OR = 1.75, 95% CI = [1.06-2.90]), no significant differences between Class 1 and Class 2 were identified for any of the disorders examined. In contrast, significant differences between Class 1 and Class 3 were identified for major depressive disorder (OR = 1.70, 95% CI = [1.17-2.47]), alcohol-use disorder (OR = 2.27, 95% CI = [1.47-3.48]), and illicit drug-use disorder (OR = 2.43, 95% CI = [1.50-3.95]). A similar pattern was observed between Class 1 and Class 4 for the four disorders examined: generalized anxiety disorder (OR = 3.08, 95% CI = [1.46-6.55]), major depressive disorder (OR = 2.81, 95% CI = [1.77-4.48]), alcohol-use disorder (OR = 3.94, 95% CI = [2.44-6.36]), and illicit drug-use disorder (OR = 4.37, 95% CI = [2.42-7.92]).

Supplementary analyses contrasted the prevalence estimates between the latent classes with all classes examined sequentially as the reference category. As compared with members of Class 4, members of the other three classes were significantly less likely to meet criteria for generalized anxiety disorder, major depressive disorder, alcohol-use disorder, and illicit drug-use disorder. The only exception was a difference between Class 3 and Class 4 for generalized anxiety disorder, but that difference was not significant. When using Class 3 as the reference group, significant differences were identified between Class 1 and Class 3 for major depressive disorder (OR = 0.59, 95% CI = [0.40–0.85]), alcohol-use disorder (OR = 0.44, 95% CI = [0.29–0.68]), and illicit drug-use disorder (OR = 0.41, 95% CI = [0.25–0.67]). Last, significant differences were observed between Classes 2 and 3 for generalized anxiety disorder (OR = 0.53, 95% CI = [0.28–0.99]) and major depressive disorder (OR = 0.74, 95% CI = [0.55–0.99]).

# **Discussion**

Drawing from a population-based study of African American and Caribbean Black adults in the United States, our aim was to address gaps in the knowledge base by addressing two salient, interrelated questions. First, can we model the heterogeneity of experiences of perceived discrimination among African American and Caribbean Blacks? Second, can we identify differences in the prevalence of generalized anxiety disorder, major depressive

disorder, alcohol-use disorder, and illicit drug-use disorder among the identified subgroups? Our findings shed light on the heterogeneity of experiences of discrimination among African American and Caribbean Black adults in the United States, as well as the links between discrimination and mood and substance-use disorders.

The study findings suggest an important extent of heterogeneity can be observed in the experiences of discrimination among African American and Caribbean Black adults. The identified subgroup with the largest membership was the General Discrimination (50%) class, which was characterized by reports of recurrent (i.e., multiple times each year) experiences of disrespectful, condescending, character-based, and hostile discrimination. Roughly 1 in 6 African American and Caribbean Black adults were categorized into the Low Discrimination class (17%) or the Disrespect and Condescension class (17%). The Low Discrimination class was characterized by universally low levels of perceived discrimination. The Disrespect and Condescension class was characterized by recurrent experiences of disrespect and condescension, but virtually no experiences of character-based or hostile discrimination. Finally, nearly 1 in 6 study respondents were categorized into the Chronic Discrimination class (15%), which was characterized by frequent experiences of disrespectful (i.e., monthly) and condescending (i.e., weekly) discrimination as well as recurrent episodes of both character-based and hostile discrimination.

As hypothesized, we found that as compared with African American and Caribbean Black adults who have experienced infrequent, low levels of discrimination (i.e., Class 1), individuals who have experienced universally elevated levels of discrimination (i.e., Classes 3 and 4) were significantly more likely to meet DSM-IV criteria for the mood and substance-use disorders examined in this study. Moreover, we found a dose-response relationship because the risks for alcohol-use disorder and illicit drug-use disorder were approximately 2 to 2.5 times greater among adults who experienced general discrimination and approximately 4 times greater among those who experienced chronic discrimination. Our findings support stress-coping theories which posit that stressors, such as perceived discrimination, are associated with health risk behaviors (e.g., Clark, Anderson, Clark & Williams, 1999). Our findings are also consistent with previous studies that examined the link between continuous measures of discrimination and mood and substance-use disorders (e.g., Gibbons et al., 2004; Seaton et al., 2008), and found a positive relationship between frequent experiences of discrimination and mood and substance-use disorders. Although most of the limited research on perceived discrimination and mood and substance-use disorders have examined direct effects, a few studies have examined mechanisms and suggest that the self-medication hypothesis (Khantzian, 2003) may partially explain this relationship (e.g., Aharonovich, Nguyen, & Nunes, 2001; Suh, Ruffins, Robins, Albanese, & Khantzian, 2008). According to the self-medication hypothesis, mood and substance use disorders are probable among individuals who experience unmanageable psychological distress (Khantzian, 2003), which may stem from stressors such as perceived discrimination. In turn, these individuals use drugs to regulate psychological distress (Khantzian, 1997; Khantzian, 2003). Thus, it is plausible that individuals who experience more frequent experiences of discrimination and corresponding unmanageable psychological distress may be more likely to turn to drugs as a means of regulating their emotions. There are a host of ways stress can and has been measured (e.g., Wethington, Brown, & Kessler, 1995). From

physiological responses to assessment of environmental events or experiences that are normally associated with the need for adaptation and subjective evaluations of the ability to cope with the demands that arise from specific events or experiences and the affective evaluation of those experiences. Research is needed to elucidate the physiological pathways, contextual and situational factors, and individual psychological factors involved in how stress is related to drug use. Research should also examine whether differences are found for everyday discrimination versus major discrimination's contribution to self-regulating behaviors.

In addition to frequency of perceived discrimination experiences, our findings point to a nuanced relationship between the type of discrimination experienced and psychiatric morbidity. In particular, our findings suggest the relationship between discrimination and mood or substance-use disorders varies by the type of discrimination experienced. Indeed, it is noteworthy that when we compared the prevalence of mood and substance-use disorders of African American and Caribbean Black adults who reported universally low levels of discrimination (i.e., Class 1) with those who reported only experiences of disrespect and condescension (i.e., Class 2), the only significant differences identified were for alcohol-use disorder. Along the same lines, when we compared the Disrespect and Condescension class with the General Discrimination class, we found the prevalence of generalized anxiety disorder, major depressive disorder, and illicit drug use disorder was lower among members of the Disrespect and Condescension class. This finding is notable given that these two classes were distinguished only by variables measuring hostile discrimination (e.g., called names or insulted) and character-based discrimination (e.g., viewed as dishonest). Considered together, these findings suggest that—despite the manifold negative interpersonal implications—the experience of discrimination in the form of disrespect and condescension alone does not appear to increase risk for salient mood and substance-use disorders. Rather, it appears that it is the combination of discriminatory experiences across multiple domains (i.e., disrespectful, hostile, character-based, and condescending discrimination) that place African American and Caribbean Black adults at risk for psychiatric morbidity. These findings suggest that individual or isolated experiences of discrimination may not produce negative self-regulating behaviors like drug use but implies a lifetime and cumulative impact. That these findings are cross cultural (African American and Caribbean Black) suggests a generalized impact of discrimination that prevails in the U.S. It is noteworthy that, as compared with respondents who reported only perceived discrimination categorized as disrespect and condescension, those in the General Discrimination group reported significantly higher levels of both income and education. Thus, it is possible that individuals with a higher socioeconomic status could face greater risk of perceiving frequent discrimination across multiple domains of discrimination, and therefore, might be at higher risk of mood and substance-use disorders. More research is needed to understand the characteristics of people in each discrimination class, which may be useful in targeting participants for prevention and intervention programs. Prevention programs could help to reduce substance use and abuse among individuals who perceive themselves as discriminated against; which is not limited to African Americans or Caribbean Blacks.

### Limitations

Several limitations should be highlighted. First, the NSAL data are cross-sectional and, consequently, the temporal ordering of variables relating to discrimination and mood and substance-use disorders is less than optimal. Therefore, we cannot make causal claims about the relationship between membership in subgroups and the development of mood and substance-use disorders. Second, given the low base rates for mood and substance-use disorders in the previous 12 months, study analyses focused on lifetime diagnoses of generalized anxiety disorder, major depressive disorder, alcohol-use disorder, and illicit drug-use disorder. It is possible that a distinct pattern of results could be observed in examining disorders across a circumscribed timeframe. Finally, the NSAL database does not provide important genetic, contextual, and situational information that could assist in the interpretation of the relationship between discrimination and mood and substance-use disorders. Future research would benefit from the use of life course designs, measuring mood and substance-use disorders with greater specificity, and incorporating additional variables to help disentangle the discrimination-mood/substance-use disorder link.

### **Conclusions**

This study supports previous research that has suggested discrimination is detrimental to the mental and physical health of African Americans and Caribbean Blacks. More than 4 of 5 (83%) African American and Caribbean Black adults in our sample reported some extent of recurrent discrimination over the past year, and respondents in the four distinct discrimination subgroups differed significantly by sociodemographic factors such as age. Consistent with previous research, our study findings suggest that greater frequency of discrimination is a source of increased risk for mood and substance-use disorders. Moreover, the results suggest the prevalence of mood and substance-use disorders is a function of the type and frequency of discrimination that individuals experience. In particular, when occurring in isolation from other experiences of discrimination, it appears that discrimination perceived as disrespect and condescension does not alone increase risk for generalized anxiety disorder, major depressive disorder, or illicit drug-use disorder. Rather, it seems it is the ongoing experience of multiple types and frequencies of discrimination, including disrespect, condescension, hostile, and character-based discrimination, which places individuals at greater risk for mood and substance-use disorders.

### **Abbreviations**

**AIC** Akaike's Information Criterion

**BIC** Bayesian Information Criterion

**CAIC** Consistent Akaike's Information Criterion

**DSM-IV** Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition

**LPA** latent profile analysis

**NSAL** National Survey of American Life

**OR** Odds ratio

**RR** Relative risk ratio

WHO-CIDI World Mental Health Composite Interview

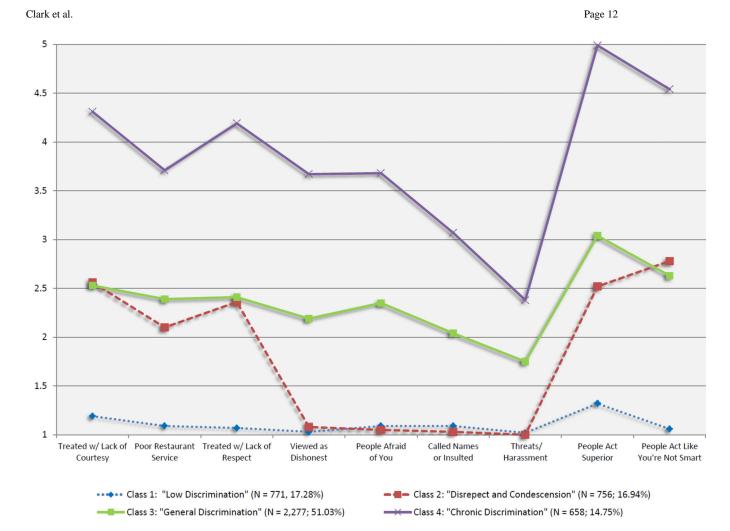
### References

Aharonovich E, Nguyen HT, Nunes EV. Anger and Depressive States Among Treatment-Seeking Drug Abusers: Testing the Psychopharmacological Specificity Hypothesis. The American Journal on Addictions. 2001; 10(4):327–334. [PubMed: 11783747]

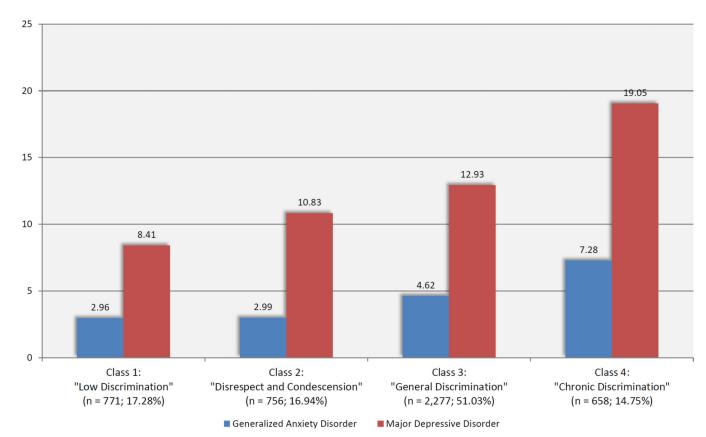
- American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th. Washington, DC: Author; 1994.
- Clark R, Anderson NB, Clark VR, Williams DR. Racism as a stressor for African Americans: A biopsychosocial model. American Psychologist. 1999; 54(10):805–816. http://dx.doi.org/10.1037/0003-066X.54.10.805. [PubMed: 10540593]
- Clark TT. Perceived discrimination, depressive symptoms, and substance use in young adulthood. Addictive Behaviors. 2014; 39:1021–1025. [PubMed: 24629325]
- Ferrari AJ, Charlson FJ, Norman RE, Patten SB, Freedman G, Murray CJ, Whiteford HA. Burden of depressive disorders by country, sex, age, and year: Findings from the Global Burden of Disease Study 2010. PLoS Medicine. 2013; 10(11):e1001547. http://dx.doi.org/10.1371/journal.pmed. 1001547. [PubMed: 24223526]
- Gaylord-Harden NK, Cunningham JA. The impact of racial discrimination and coping strategies on internalizing symptoms in African American youth. Journal of Youth and Adolescence. 2009; 38:532–543. http://dx.doi.org/10.1007/s10964-008-9377-5. [PubMed: 19636726]
- Gee GC, Spencer MS, Chen J, Takeuchi D. A nationwide study of discrimination and chronic health conditions among Asian Americans. American Journal of Public Health. 2007; 97:1275–1282. http://dx.doi.org/10.2105/AJPH.2006.091827. [PubMed: 17538055]
- Gibbons FX, Gerrard M, Cleveland MJ, Wills TA, Brody G. Perceived discrimination and substance use in African American parents and their children: A panel study. Journal of Personality and Social Psychology. 2004; 86:517–529. http://dx.doi.org/10.1037/0022-3514.86.4.517. [PubMed: 15053703]
- Hunte HE, Barry AE. Perceived discrimination and DSM-IV-based alcohol and illicit drug use disorders. American Journal of Public Health. 2012; 102(12):e111-e117. [PubMed: 23078466]
- Jackson JS, Torres M, Caldwell CH, Neighbors HW, Nesse RM, Taylor RJ, Williams DR. The National Survey of American Life: A study of racial, ethnic and cultural influences on mental disorders and mental health. International Journal of Methods in Psychiatric Research. 2004; 13(4):196–207. http://dx.doi.org/10.1371/journal.pmed.1001547. [PubMed: 15719528]
- Jones, JM. Prejudice and racism. 2nd. New York, NY: McGraw-Hill; 1997.
- Kessler RC, Chiu WT, Demler O, Walters EE. Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. Archives of General Psychiatry. 2005; 62:617–627. http://dx.doi.org/10.1001/archpsyc.62.6.617. [PubMed: 15939839]
- Kessler RC, Mickelson KD, Williams DR. The prevalence, distribution, and mental health correlates of perceived discrimination in the United States. Journal of Health and Social Behavior. 1999; 40(3): 208–230. http://dx.doi.org/10.2307/2676349. [PubMed: 10513145]
- Kessler RC, Üstün TB. The World Mental Health (WMH) Survey initiative version of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI). International Journal of Methods in Psychiatric Research. 2004; 13(2):93–121. http://dx.doi.org/10.1002/mpr. 168. [PubMed: 15297906]
- Khantzian EJ. The self-medication hypothesis of substance use disorders: a reconsideration and recent applications. Harvard review of psychiatry. 1997; 4(5):231–244. [PubMed: 9385000]
- Khantzian EJ. The self-medication hypothesis revisited: The dually diagnosed patient. Primary Psychiatry. 2003; 10(9):47–54.

Long, JS.; Freese, J. Regression models for categorical dependent variables using Stata. College Station, TX: Stata Press; 2006.

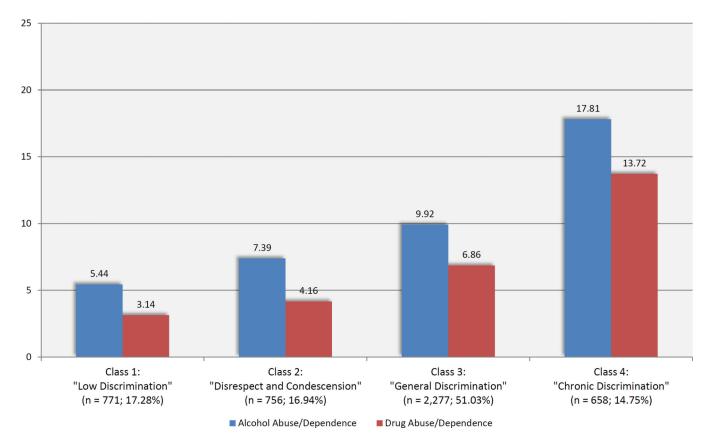
- Martin JK, Tuch SA, Roman PM. Problem drinking patterns among African Americans: The impacts of reports of discrimination, perceptions of prejudice, and "risky" coping strategies. Journal of Health and Social Behavior. 2003; 44:408–425. http://dx.doi.org/10.2307/1519787. [PubMed: 14582316]
- McLachlan, G.; Peel, D. Finite mixture models. New York, NY: John Wiley & Sons; 2000. http://dx.doi.org/10.2307/1519787
- Muthén B, Asparouhov T. Item response mixture modeling: Application to tobacco dependence criteria. Addictive Behaviors. 2006; 31:1050–1066. [PubMed: 16675147]
- Soto JA, Dawson-Andoh NA, BeLue R. The relationship between perceived racial discrimination and Generalized Anxiety Disorder among African Americans, Afro Caribbeans and non-Hispanic Whites. Journal of Anxiety Disorders. 2011; 25:258–265. [PubMed: 21041059]
- Schulz AJ, Gravlee CC, Williams DR, Israel BA, Mentz G, Rowe Z. Discrimination, symptoms of depression, and self-rated health among African American women in Detroit: Results from a longitudinal analysis. American Journal of Public Health. 2006; 96:1265–1270. http://dx.doi.org/10.2105/AJPH.2005.064543. [PubMed: 16735638]
- Seaton EK, Caldwell CH, Sellers RM, Jackson JS. The prevalence of perceived discrimination among African American and Caribbean Black youth. Developmental Psychology. 2008; 44:1288–1297. http://dx.doi.org/10.1037/a0012747. [PubMed: 18793063]
- StataCorp. Stata Statistical Software: Release. Vol. 13. College Station, TX: Author; 2013.
- Suh JJ, Ruffins S, Robins CE, Albanese MJ, Khantzian EJ. Self-medication hypothesis: Connecting affective experience and drug choice. Psychoanalytic psychology. 2008; 25(3):518.
- Vermunt, JK.; Magidson, J. LG-syntax user's guide: Manual for Latent GOLD 4.5 syntax module. Belmont, MA: Statistical Innovations; 2008.
- Wethington, E.; Brown, G.; Kessler, R. Interview measurement of stressful life events. In: Cohen, S.; Kessler, R.; Underwood Gordon, L., editors. Measuring Stress. New York: Oxford University Press; 1995. p. 59-79.
- Whitbeck LB, Hoyt DR, McMorris BJ, Chen X, Stubben JD. Perceived discrimination and early substance abuse among American Indian children. Journal of Health and Social Behavior. 2001:405–424. http://dx.doi.org/10.2307/3090187. [PubMed: 11831140]
- Williams DR, Yu Y, Jackson JS, Anderson NB. Racial differences in physical and mental health socio-economic status, stress and discrimination. Journal of Health Psychology. 1997; 2:335–351. http://dx.doi.org/10.1177/135910539700200305. [PubMed: 22013026]
- Zhang J, Yu K. What's the relative risk? A method of correcting the odds ratio in cohort studies of common outcomes. Journal of the American Medical Association. 1998; 280:1690–1691. http://dx.doi.org/10.1001/jama.280.19.1690. [PubMed: 9832001]



**Figure 1.** Characteristics of Latent Classes



**Figure 2.** Prevalence of Lifetime Clinical Disorders by Latent Class



**Figure 3.** Prevalence of Lifetime Substance Use Disorders by Latent Class

Table 1

Fit Indices for Latent Classes

Class Solution	Log Likelihood	BIC	AIC	CAIC	Entropy
1 Class	-56687.35	113752.86	-56687.35 113752.86 113464.71 113797.86	113797.86	n/a
2 Classes	-51010.68	102575.98	102153.36	102641.98	89.72
3 Classes	-48973.47	98678.04	98120.95	98765.04	88.16
4 Classes	-48116.63	97140.82	96449.26	97248.82	85.97
5 Classes	-47698.67	96481.38	95655.34	96610.38	80.59

Note: AIC = Akaike's Information Criterion, BIC = Bayesian Information Criterion, CAIC = Consistent Akaike's Information Criterion.

Table 2

Sociodemographic Characteristics by Latent Class

	Class 1: "Low Discrimination" (n = 771; 17.28%)	Class 2: "Disrespect and Condescension" (n = 756; 16.94%)	Class 3: "General Discrimination" ( <i>n</i> = 2277; 51.03%)	Class 4: "Chronic Discrimination" $(n = 658; 14.75\%)$	
	M(SD) / %	M(SD) / %	M(SD) / %	M(SD) / %	$F/\chi^2$
Sociodemographic Factors					
Age	41.16 (12.85)	40.98 (12.15)	37.78 (12.14)	36.61 (12.13)	29.66
Gender					
Female	60.59	70.93	51.84	45.28	***
Male	39.41	29.07	48.16	54.72	115.6/
Race/Ethnicity					
Caribbean Black	6.64	5.55	6.14	6.28	\$
African American	93.36	94.45	93.86	93.72	SII
Household Income	30,346 (25,345)	34,877 (31,232)	39,473 (32,315)	31,597 (29,989)	23.29 ***
Education Level	12.27 (2.42)	12.59 (2.41)	13.09 (2.30)	12.22 (2.36)	39.27

Note:

\* p <.05,

\*\* p < .01,

\*\*\*

p < .01,

\*\*\*

All percentages are reported as column percentages.

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Table 3

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Sociodemographic Characteristics and DSM-IV Mental Disorders

	"Display Conc $(n = 7)$	Class 2: "Disrespect and Condescension" (n = 756; 16.94%)	Disci $(n = 2)$	Class 3: "General Discrimination" $(n = 2277; 51.03\%)$	Disc. $(n = 6)$	Class 4: "Chronic Discrimination" ( <i>n</i> = 658; 14.75%)
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Sociodemographic Factors						
Age	1.00	(0.99–1.01	0.98	(0.97-0.99)	0.97	(0.96-0.98)
Gender						
Female	1.00		1.00		1.00	
Male	09.0	(0.46-0.78)	1.36	(1.06-1.76)	1.86	(1.34-2.57)
Race/Ethnicity						
Caribbean Black	1.00		1.00		1.00	
African American	1.27	(0.81–1.97)	1.25	(0.78–2.02)	1.16	(0.65-2.08)
Household Income	1.00	(1.00-1.01)	1.00	(1.00-1.01)	1.00	(0.99-1.00)
Education Level	1.05	(0.99-1.12)	1.12	(1.06-1.18)	0.97	(0.91-1.03)
DSM-IV Mental Disorders						
Clinical Disorders						
Generalized Anxiety						
Lifetime	0.97	(0.51-1.86)	1.84	(0.91–3.75)	3.08	(1.46-6.55)
Major Depression						
Lifetime	1.26	(0.82-1.94)	1.70	(1.17-2.47)	2.81	(1.77-4.48)
Substance Use Disorders (Abuse/Dependence)						
Alcohol						
Lifetime	1.75	(1.06-2.90)	2.27	(1.47-3.48)	3.94	(2.44–6.36)
Illicit Drug						
Lifetime	1.67	(0.90-3.08)	2.43	(1.50-3.95)	4.37	(2.42-7.92)

Note: Reference class is Class 1: "Low Discrimination" (n = 771; 17.28%). Risk ratios (RR) and 95% Confidence Intervals adjusted for age, gender, race/ethnicity, household income, and education level. RRs and 95% CIs in bold are significant at p < .05.