Skin Tone and Mental Health among African Americans and Caribbean Blacks in the U.S.

Thesis

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#### Abstract

Evidence suggests that skin tone is an important factor influencing physical health outcomes among African Americans. However, few studies have analyzed the relationship between skin tone and mental health for African Americans and there are currently no empirical analyses of the association between skin tone and mental health for Caribbean Blacks. Given the steadily increasing number of Black immigrants in the U.S. over the past two decades, further research comparing the differences between Black subpopulations in the U.S. is necessary. This study expands upon previous research by examining the relationship between skin tone and mental health among Black Americans and Black Caribbeans. There are three crucial differences between these two Black subpopulations that are likely to impact the relationship between skin tone and mental health: 1) nativity; 2) racial/ethnic identity; 3) the social organization of each group's home country. Using the National Survey of American Life (NSAL), I examine and compare the association between skin tone and mental health disorders among Black Americans and Black Caribbeans.

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To my family-biological, fictive, and academic,

This would not have been possible without your continued support throughout this process. I am so grateful to be surrounded by such amazing people and I cannot thank you enough.

# Vita

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## Introduction

In the United States, health disparities between Blacks and Whites have been documented for decades (Williams 1999, 2012; Williams and Jackson 2005). Consistently, studies find that Blacks have worse outcomes than Whites on a number of different health measures. For example, data indicate that the rates of hypertension among Blacks are 13.2% higher than rates among Whites (Ferdinand et al. 2017). Similar disparities exist when considering rates of cardiovascular disease and diabetes (Centers for Disease Control and Prevention 2017; Lloyd-Jones et al. 2009). While social class accounts for some of the racial differences in health outcomes (Hayward et al. 2000), racial disparities persist even after controlling for socioeconomic status (SES) and family background (Walsemann, Gee, and Geronimus 2009). Given this fact, scholars have begun to look beyond conventional indicators, such as income, education, and health behaviors, to investigate the influence of other social factors such as discrimination to explain racial disparities in health.

Research increasingly links racial discrimination to adverse health outcomes among Blacks broadly; however, few studies have examined intragroup variations (Borrell et al. 2006; Hargrove 2018a; Krieger et al. 2011; Monk 2015). Among this smaller body of research, some evidence suggests that further disparities exist among Blacks based on skin tone (Hargrove 2018a; Monk 2015) and nativity (Krieger et al. 2011; Williams et al. 2007). Generally, African Americans with the darkest complexions experience poorer health outcomes compared to their counterparts with lighter skin tones. Furthermore, these associations tend to be gendered—the relationship between skin tone and health tends to be stronger among women than men (Hargrove 2018b; Monk 2015).

While previous research has produced evidence linking skin tone to physical health outcomes among African Americans, much remains unknown. First, few studies assess the association between skin color and mental health, instead focusing on how the distribution of physical health tends to differ across skin tone. This is unfortunate because evidence shows that the relationship between racial discrimination and health is typically more pronounced for mental as opposed to physical health outcomes (Paradies et al. 2015). Second, to the best of my knowledge, there are currently no studies that assess whether the association between skin tone and health differs across certain Black subpopulations, specifically between immigrant and nonimmigrant groups. Nativity is an important social cleavage that has been shown to shape health disparities in the U.S (Castañeda et al. 2015; Salas-Wright et al. 2018); therefore, nativity may play a crucial role in moderating the relationship between skin tone and mental health. Finally, empirical work assessing health outcomes among foreign-born Blacks is important, given the dramatic increase in Black immigration to the U.S. in recent decades. The number of Black immigrants to the U.S. has nearly quadrupled since 1990, and Caribbean nations are among the top birthplaces for Black immigrants in the U.S. (Anderson and Lopez 2018). In 1990, there were approximately 1.4 million Black immigrants living in the U.S. and by 2016 that number increased to 4.2 million.

The primary purpose of the proposed study is to estimate the extent to which the association between skin color and mental health for differs between Caribbean Blacks and

African Americans. These two populations diverge from one another in many ways, three of which I will highlight in this paper: 1) Caribbean Blacks benefit from an "immigrant health advantage" that provides a buffer from adverse health outcomes; 2) many Caribbean Blacks do not self-identify solely as Black, which is likely to have important implications for the extent to which their health might be impacted by key mediating mechanisms, such as racial discrimination; and 3) in Caribbean countries, the racial composition of social, political, and economic power structures provide paths to social mobility that are more egalitarian than those in the U.S. As a result of these differences, I expect the relationship between skin color and mental health to be weaker for Caribbean Blacks than it is for African Americans. This study will expand the existing literature on racial disparities in health in two important ways. First, it will examine important differences among Blacks with regard to how racial disparities in health are produced and maintained over time. Second, it will focus on the mental health impacts of skin color variation within the Black community, which has received comparatively less attention than physical health outcomes

#### Literature Review

#### Skin Tone and Health Among African Americans

Studies show that skin tone among African Americans is associated with hypertension (Sweet et al. 2007), allostatic load<sup>1</sup> (Cobb et al. 2016), cardiometabolic health (Wassink, Perreira, and Harris 2016), and cumulative biological risk<sup>2</sup> (Hargrove 2018b). Blacks with darker complexions have higher systolic blood pressure and higher levels of allostatic load compared to those with lighter skin tones (Cobb et al. 2016; Sweet et al. 2007). Furthermore, Blacks with the darkest complexions are 1.65 and 2.23 times more likely to suffer from obesity and diabetes, respectively (Wassink et al. 2016:1022).

Despite the increasing number of studies analyzing the relationship between skin tone and physical health among African Americans, few research efforts focus on how mental, as opposed to physical health outcomes, vary across Blacks with different skin tones. Among the relatively small body of literature focusing on mental health outcomes, results have been inconsistent (Borrell et al. 2006; Keith et al. 2010; Monk 2015; Perreira, Wassink, and Harris 2019). While some researchers find no association between skin tone and mental health among African Americans (Borrell et al. 2006; Keith et al. 2010), others have found a direct link

<sup>&</sup>lt;sup>1</sup> Allostatic load is a measure of biological deterioration caused by cumulative exposure to stress <sup>2</sup> Cumulative biological risk is a measure that captures "physiological dysregulation" (Hargrove 2018b)

between skin tone, self-rated mental health, and depression. Monk (2015) demonstrates that each incremental increase in the darkness of a respondent's skin tone is accompanied by a 12% increase in the likelihood of reporting worse mental health. Furthermore, respondents with the darkest complexions are more than 54% more likely to report feelings of depression when compared to those with lighter complexions (2015).

Given the near-linear relationship between skin tone and physical health outcomes among African Americans, the inconsistencies within the literature on skin tone and mental health are surprising. The stress processes linking skin tone to physical health are likely to be similar to those connecting skin tone to mental health (Dressler, Oths, and Gravlee 2005) and should yield comparable results. Yet, scholars have not been able to establish a consistent link between skin tone and mental health among Blacks. One potential reason why previous empirical studies have not uncovered a consistent association between skin tone and mental health is due to restricted sample sizes with limited variation in key exposures or outcomes of interest (Perreira et al. 2019). Furthermore, datasets including measures of skin tone in conjunction with valid indicators or mental health status are scarce. Further research is needed to help explain the relationship between skin tone and health.

#### **The Immigrant Health Paradox**

Despite the strong association between socioeconomic status (SES) and health for U.S. natives (Backlund, Sorlie, and Johnson 1996; Mackenbach 2012; Smith 2004), the extent to which SES shapes health outcomes among immigrants is not nearly as pronounced. To this end, many immigrants actually fare better than U.S. natives on a wide range of physical and mental health

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outcomes including infant birth weight (Buekens et al. 2000; Hamilton, Teitler, and Reichman 2011), all-cause and cause-specific mortality (Abraído-Lanza, Chao, and Flórez 2005; Hummer and Amir 2000), and psychiatric disorders such as substance use disorders and anxiety disorders (Escobar 1998; Williams et al. 2007). Scholars have referred to this phenomenon as the "immigrant health paradox" (John et al. 2012) or the "immigrant health advantage" (Riosmena, Wong, and Palloni 2013).

To date, the vast majority of empirical research on the immigrant health paradox focuses on Latino immigrants, in general, and Mexican Americans, in particular (Abraído-Lanza et al. 1999, 2005; Buekens et al. 2000; Escobar 1998; Hamilton, Teitler, et al. 2011; Viruell-Fuentes 2007). However, recent studies have found evidence suggesting that non-Latino immigrant groups also benefit from a mental health advantage that can be traced back to their nativity (Hamilton, Cardoso, et al. 2011; John et al. 2012; Williams et al. 2007). Asian immigrants (John et al. 2012), White immigrants, and Black immigrants (Hamilton, Cardoso, et al. 2011) all receive a protective health advantage from being foreign-born and exhibit less mental illnesses compared to their U.S. born counterparts.

Although some immigrants receive a health advantage associated with being foreignborn, the health benefits associated with nativity tend to dissipate the longer one lives in the U.S. Thus, second- and third-generation immigrants are at a higher risk of suffering from a variety of mental health conditions such as mood, anxiety, and substance use disorders compared to firstgeneration immigrants (Shekunov 2016; Williams et al. 2007). In a study of mental health among Black Caribbean immigrants, Williams et al. (2007) found that second generation men and women were 8.7 times and 4.6 times more likely to suffer from a substance use disorder than their first-generation counterparts, respectively. Evidence from this and other similar studies (Cantor-Graae and Selten 2005; Salas-Wright, Kagotho, and Vaughn 2014) suggests that although immigrants may enter the U.S. with a mental health advantage, the protective effects of nativity diminish as time in the U.S increases.

Prominent theories attribute the temporal nature of the immigrant health paradox to cultural differences between first- and second- generation immigrants. Scholars argue that cultural factors such as positive health behaviors, strong social support, and extended family ties serve to "buffer" immigrants from various adverse mental health outcomes, particularly depression, anxiety, and suicidality (Abraído-Lanza et al. 1999; Escobar 1998). However, as immigrants acculturate into American society, their close social ties gradually decay and they being to adopt risky health behaviors, leading to generational differences in mental health outcomes over time (Giuntella 2016).

Although cultural explanations of the immigrant health paradox remain prevalent, recent studies have drawn attention to the role of structural factors. Viruell-Fuentes (2007) argues that acculturation-focused theories ignore the larger political, social, and historical contexts within which migration exists. For many immigrants, migrating to the U.S. and becoming part of American society means becoming a racialized "other," something that immigrants may not have had to deal with in their countries of origin (Viruell-Fuentes, Miranda, and Abdulrahim 2012). These experiences of othering often come along with increased exposure to interpersonal discrimination, which has consistently been shown to have a detrimental effect on both mental and physical wellbeing (Alhusen et al. 2016; Monk 2015; Pachter et al. 2018; Williams 1999).

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Research designed to investigate the association between immigrant status,

discrimination, and mental health among Black immigrants has provided evidence to support this argument. When comparing the experiences of African Americans and Caribbean Blacks, Soto et al. (2011) found that racial discrimination consistently predicted the probably of having general anxiety disorder (GAD) among African Americans of all ages but only among older Caribbean Blacks. For Caribbean immigrants under the age of 35, racial discrimination was shown to be protective against the onset of GAD. These findings suggest that the mental health of Black immigrants, upon arrival to the U.S., might be less affected by experiences of unfair treatment but that over time, the association between discrimination and mental health is likely to become more pronounced. Due to the initial protective effects of nativity for immigrant health, I expect the relationship between skin color and mental health to be significantly stronger for African Americans compared to Caribbean Blacks. Further, I expect the association between skin color and mental health among Caribbean Blacks to become more pronounced over time.

#### **Racial/Ethnic Identification**

Another crucial difference between African Americans and Caribbean Blacks concerns how they socially construct their own racial/ethnic identities. While both groups identify racially as Black, racial identity tends to be more salient among African Americans than among Caribbean Blacks (Rogers 2001; Waters 1999). Racial identity plays a prominent role in the social and political lives of African Americans, shaping both day to day interactions and political behavior (Rogers 2001; Sellers and Shelton 2003), in a way that it typically does not for Black immigrants. Caribbean Blacks are more likely to adopt an ethnic or national identity in addition to a racial

identity (Benson 2006; Vickerman 1999; Waters 1991, 1999). The specific ethnic identity that Caribbean Blacks adopt upon arrival in the U.S. varies widely, and can be as broad as Caribbean and/or West Indian or as specific as Jamaican (Waters 1999). Recent Black immigrants assume distinctive ethnic identities not only to distance themselves from African Americans to avoid the stigma and discrimination associated with being a racial minority in America, but to maintain a strong sense of national and cultural pride in an American society that prides itself on being an ethno-cultural melting pot that emphasizes assimilation as opposed to multiculturalism (Benson 2006; Waters 1999; Waters, Kasinitz, and Asad 2014).

Although Caribbean immigrants are more likely to identify ethnically upon arrival in the U.S., this preference tends to change over time. Black immigrants become more conscious of how race directly affects everyday interactions and consequently become aware of their status as a racialized "other" within America's social hierarchy (Vickerman 1999; Viruell-Fuentes et al. 2012). Using a sample of adults in four metropolitan areas, Benson (2006) found that Caribbean Blacks who have lived in the U.S. longer are more likely to identify with a shared racial identity compared to those who have recently migrated. Qualitative analyses of racial identity among Caribbean youth found similar patterns across generations (Waters 1994). These findings indicate that racial and ethnic identification choices among Caribbean immigrants are influenced by the length of time migrants have spent in the U.S.

Racial and ethnic identification processes among African Americans and Caribbean Blacks have important implications for health in general, and for mental health, specifically. The development of a common racial/ethnic identity enables strong social bonds to develop between individuals and groups of people who might not otherwise have much in common with each other (Smith 1991). These feelings of connectedness have been shown to exert a positive impact on mental health, primarily by providing a sense of belonging and community (Thoits 2011). Furthermore, a salient racial/ethnic identity can act as a buffer from negative stereotypes against an individual's social status or group, particularly those that are stigmatized or subordinate (Pascoe and Richman 2009). Given this, I expect Caribbean Blacks to have significantly better mental health outcomes than African Americans because Caribbean Blacks' strong racial/ethnic identity grounded in positive beliefs about their ethnic group may help protect them from the harmful mental health effects of various stressors.

## Social/Political/Cultural Context of Origin Country

In Caribbean countries, Black people (and other people of color) are the demographic majority and consistently outnumber White people (Vickerman 1999; Waters 1999). This is vastly different from the demographic make-up of the United States, which instead has a White majority and a number of non-White minority groups. These differences are consequential to mental health outcomes among African Americans and Caribbean Blacks because they impact power dynamics and influence the social meaning of race within each country.

Due to differences in the overall racial make-up in the U.S. compared to the Caribbean, Blacks in Caribbean countries more often hold positions of power, particularly those with high levels of social and political prestige that provide access to key social connections and imbue the office holder with a sense of personal, professional, and social meaning (Tormala and Deaux 2006; Waters 1999). While Blacks in the U.S. occasionally occupy positions of political and/or social power (e.g. the Obama presidency), this is still far from the norm. Racial representation, particularly in regard to political leaders, increases feelings of belonging and political trust among Blacks (Whitby 2000). Low levels of political trust and feelings of belonging are associated with a number of adverse mental health outcomes such as poor psychological health (Lindstrom and Mohseni 2009) and depression (Hagerty and Williams 1999). Consequently, not only is racial representation important for an individual's understanding of their own social position within a society but it is also influences their mental health. With higher levels of racial representation in the Caribbean, Caribbean Blacks may have a stronger sense of belonging, which may help buffer the negative effects of racial discrimination on mental health outcomes.

Differences in the overall demographic make-up of Caribbean countries compared to the U.S. as well as subsequent opportunities for leadership among Blacks influences the intrinsic and complex relationship between race and class in each society. In the Caribbean, race and class are not intrinsically tied to one another to the same extent that they are in the U.S. This allows racial identity to be socially constructed and interpreted in a manner that is decoupled from class status (Vickerman 1999). Caribbean have the opportunity to see Black people in a variety of different occupations and social positions, separating racial identity from ideas of social class. This is in stark contrast to the United States, where an individual's socioeconomic status is heavily dependent on their racial/ethnic identity (Williams, Priest, and Anderson 2016). In the United States, Black and Hispanic people have less income, wealth, and purchasing power when compared to their White counterparts with the same levels of education (Williams et al. 2016). Furthermore, U.S. media portrayals disproportionately display Black people as impoverished (Clawson and Trice 2000), perpetuating ideas that Blackness is associated with lower social ranking.

While African Americans are well aware of the extensive history of systemic racism in America, Caribbean Blacks arrive in the U.S. from a different social context with less knowledge of racism in the U.S. Upon arrival, Caribbean immigrants hold a more egalitarian and individualistic view of social mobility and success in America that is consistent with the social and political structures in their countries of origin (Vickerman 1999; Waters 1999). Considering Caribbean Blacks' inexperience with racism in America will likely help buffer the negative effects of racialized stress, which I believe will be evidenced by a mental health advantage over African Americans. Although racial discrimination is not as common in the Caribbean, there is an informal social hierarchy based on skin color (Campbell 2017). In many Caribbean countries, lighter complexions are associated with social and economic benefit (Khan 2009; Wilder and Cain 2011). Given this, I expect to find a significant relationship between skin color and mental health outcomes among Caribbean Blacks.

In sum, African Americans and Caribbean Blacks differ from one another in three important ways. First, Caribbean Blacks benefit from an immigrant health advantage that provides a buffer from experiencing deleterious mental health outcomes; however, this advantage is likely to weaken the longer they remain in the U.S. Second, while African Americans tend to identify racially solely as Black, many Caribbean Blacks identify both racially (as Black) and ethnically (as Caribbean/Jamaican/Haitian/etc.). Finally, the sociopolitical organization of Caribbean countries differs from that of U.S. in important ways that are likely to differentially impact how Caribbean Blacks and African Americans interpret their self-worth in both a racialized and classed manner.

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These key distinctions are likely to result in the association between skin tone and mental health being more pronounced among African Americans compared to Caribbean Blacks. However, due to the protective effects of the immigrant health paradox dissipating over time, I expect these ethnic variations in the association between skin tone and mental health to decrease the longer Caribbean Blacks reside in the U.S. Using detailed survey data from a nationally representative sample of African Americans and Caribbean Blacks, I test the following research hypotheses:

- Caribbean Blacks will have significantly better mental health outcomes compared to African Americans.
- The gap in mental health outcomes between African Americans and Caribbean Blacks will decrease with time in the United States.
- 3. The association between skin tone and mental health will be significantly more pronounced for African Americans compared to Caribbean Blacks.
- The difference in the association between skin tone and mental health between African Americas and Caribbean Blacks will remain significant even after controlling for differential immigrant status.

## Data and Methods

#### **Description of Data**

The current study utilizes data from the National Survey of American Life (NSAL), which is a nationally representative survey of Black populations in the U.S. Data was collected from 2001 to 2003 by the Program for Research on Black Americans housed at the Institute for Social Research at the University of Michigan. Surveys were administered in person using computer-assisted technology. The NSAL contains oversamples of important Black subpopulations. It is the first, and still one of the very few, datasets to include a large probability sample of Caribbean Blacks that is large enough to enable comparisons between this subgroup and African Americans (Jackson et al. 2004:196). This dataset includes information from 3,570 African Americans, 1,673 Caribbean Blacks, and 765 Whites (N=6,008). Thus, the NSAL is the best dataset to address the specific aims of the current study because it combines nationally representative information on skin tone, immigration history, racial identity, and a number of mental health measures from a diverse, nationally representative sample of Black Americans. Furthermore, the NSAL boasts an overall response rate of 72.3% (Jackson et al. 2004).

#### Description of the Measures

The dependent variables used in this analysis are lifetime and 12-month prevalence rates of allcause, mood, anxiety, and substance use mental disorders. These outcomes are captured using measures from the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), a widely used guideline for identifying psychiatric disorders based on their underlying symptomatic expression. Substance use disorders and depression are captured using DSM-IV criteria for symptomology of each disorder. Anxiety disorders are assessed using a composite measure detecting symptoms of any one of the following anxiety disorders: general anxiety disorder (GAD), agoraphobia, social anxiety disorder, panic disorder, and post-traumatic stress disorder (PTSD). All-cause (lifetime and 12-month) mental health disorders are composites indicators that classify respondents who experience any of the afore mentioned psychiatric symptomatology (mood, anxiety, or substance disorders). All dependent variables are coded dichotomously with 0 indicating no psychiatric disorder and 1 indicating the presence of a specific disorder.

The primary independent variables of interest in the current study are race/ethnicity, generational status, and skin color. Respondents are categorized as either African American or Caribbean Black based on respondents' self-report and data collected about respondents' ancestral origins. Respondents' race was categorized based on responses to the following question: "Which one best describes your race?" Answer options included "Black or African American"; "White"; "American Indian or Alaska Native"; "Asian"; "Pacific Islander"; and "Other (SPECIFY)." To determine ancestral origins, each respondent was asked to answer the following question about their parents' and maternal/paternal grandparents' nativity: "In what state or country was... your [relative] born?" Caribbean Blacks include Black respondents who originally immigrated from the Spanish Caribbean (i.e. Cuba, Puerto Rico) as well as Haiti, Jamaica, and Trinidad and Tobago. Race/ethnicity is coded dichotomously where 0 represents African Americans and 1 represents Caribbean Blacks.

By combining information on the respondent's race/ethnicity and generational status, I created three distinct subgroups based on respondents" generational status: (1) first generation immigrants; (2) 1.5 generation immigrants and; (3) second generation or more. NSAL respondents who identified as African American and were all born in the U.S. and were classified as second generation or more. There were a small number of African American respondents who reported having grandparents born in Africa, Asia, and other non-Caribbean countries. African American respondents with grandparents born outside of the U.S. and outside of the Caribbean were also coded as second generation or more. Caribbean Blacks who immigrated on or after their 13th birthday were considered first generation, while Caribbean Blacks who were born in foreign countries and migrated to the U.S. before the age of 13 were classified as the 1.5 generation. Previously, researchers have conceptualized 1.5 generation immigrants as those who migrated between the ages of 6 and 12 (Rumbaut 2006). However, recent empirical studies on mental health outcomes among immigrants suggests that there may be significant differences between immigrants who arrive to the U.S. in childhood versus those who arrive in adolescence (Salas-Wright et al. 2018). Finally, I consider second generation immigrants to be those who were born in the United States, report Caribbean ancestry, and have parents or grandparents who were born in a foreign country.

Skin color is assessed using interviewer-reported responses to the following prompt, "The R[espondent]'s skin color is:". Response values are as follows: 1 (Very light brown); 2 (Light brown); 3 (Medium brown); 4 (Dark brown); 5 (Very dark brown). Using an interviewer-reported measure of skin color is useful because it reflects how respondents are typically perceived by others and therefore, how they are treated by others in response (Hersch 2011). All

subsequent analyses utilize category medium brown (3) as a reference group, given evidence suggesting that medium complexioned Blacks report better mental health outcomes when compared to those with lighter and darker complexions (Monk 2015).

The full NSAL sample consists of 6,008 respondents. Respondents who self-reported their race as White, Asian, Pacific Islander, and/or other were removed from the study sample. The sample was further restricted to exclude those with missing values for race and skin tone. Respondents with missing values for lifetime and 12-month substance use, depression, and anxiety disorders were also dropped from the study same. The final study sample size is 4,771 respondents.

#### Analysis

For this analysis, I produced both descriptive statistics (means and standard deviations for continuous variables and frequency distributions for categorical variables) and a series of multivariate logistic regression models. These analyses were used to determine overall patterns in the data as well as to address the following research questions: (a) What are the general patterns of mental health among African Americans and Caribbean Blacks? (b) What is the relationship between skin tone and mental health among African Americans and Caribbean Blacks? (c) How, if at all, does the relationship between skin tone and health differ for African Americans and Caribbean Blacks, even after accounting for differences in immigration status (i.e. time in the U.S.)? To highlight differences between the Black subpopulations within the study sample, all analyses are stratified by race/ethnicity (African Americans vs. Caribbean Blacks).

The descriptive statistics were created by compiling data on the sociodemographic characteristics of the study sample that might confound the association between skin tone and mental health among African Americans and Caribbean Blacks. These included age, sex, marital status, household income, educational attainment. Since all dependent variables of interest were dichotomous, I estimated a series of logistic regression models. Model 1 assessed the bivariate relationship between race/ethnicity and mental health outcomes. Model 2 contained additional statistical controls for respondent's age and sex, while Model 3 controlled for age, sex, and marital status. Models 1-3 are not included in this paper but are available upon request. The full model, Model 4, includes age, sex, marital status, income, and education as potential confounders. I estimated an additional model for Caribbean Blacks that takes into consideration generational status to account for time spent in the U.S. It was necessary to run stratified models since all African American NSAL respondents were considered 2<sup>nd</sup> generation; thus, there was no variation in this key indicator for half the sample. Identical analyses were produced for each of the eight different mental health outcomes. Unless explicitly stated, all logistic regression results display results from the full models with all covariates (Models 4 and 5).

#### Results

Table 1 displays the descriptive characteristics of the study sample. Overall, 29% of the study sample experienced any mental health disorder in their lifetime. Similarly, 15% of respondents reported symptoms of any mental health disorder in the past 12 months. Overall, African Americans experience worse mental health than Caribbean Blacks. This holds true for both lifetime and 12-month prevalence. For example, 16% of African Americans suffer from any type of lifetime mental disorder, compared to 12% of Caribbean Blacks. The most common mental health disorders among respondents, regardless of race/ethnicity, are anxiety disorders. 18% and 12% of the study sample reports having an anxiety disorder at any point in their lifetime and within the last 12 months, respectively. Regarding race-specific findings, 20% of African Americans but only 14% of Caribbean Blacks experienced an anxiety disorder during their lifetime. Similarly, 11% of African Americans but only 8% of Caribbean Blacks experienced an anxiety disorder within the past 12 months.

Among NSAL respondents, skin tones vary considerably, both within and across race. 46% of the full sample were classified as having a medium brown complexion, while 28% and 16% were identified as dark brown and light brown, respectively. Only 6% of respondents have very dark brown skin and 4% have very light brown skin. Moreover, the distribution of skin tone differs when examined separately by race/ethnicity. The majority of African Americans in the study sample were classified as medium brown (48%), with those who have dark brown skin comprising the next largest group (26%). Alternatively, only 40% of Caribbean Blacks were categorized as medium brown and 33.02% were categorized as dark brown. Few respondents of either race/ethnicity were determined to be very light brown (5% of African Americans and 4% of Caribbean Blacks) or very dark brown (5% of African Americans and 9% of Caribbean Blacks). There is also a considerable amount of variation among Caribbean Black respondents in regard to generational status. 62.3% of Caribbean Black respondents are first generation immigrants, 11.4% are 1.5 generation immigrants, and the remaining 26% are second generation immigrants or more.

There are also notable differences across race/ethnicity for several sociodemographic control variables. Overall, NSAL respondent are well-educated—almost 41% have attended college and just under 17% graduated with a bachelor's or advanced degree. When I stratify the sample by race, I find that only 36% of African Americans but 52% of Caribbean Blacks, respectively, have attended college. Similarly, 14% of African Americans have graduated with a bachelor's degree or more compared to 25% of Caribbean Blacks. Nearly 37% of the full sample is currently married, while 30% are formerly married. I find differences in marital status by race/ethnicity as well. For African American respondents, 34% are currently married and 32% are formerly married. Rates of marriage are higher for Caribbean Blacks, with 43% being currently married and 23% having been formerly married. Median household income for the full sample is \$27,000, while median household incomes for African Americans and Caribbean Blacks are \$24,000 and \$32,250, respectively.

Table 2 depicts regression results predicting multiple lifetime and 12-month mental health disorders among African Americans and Caribbean Blacks when controlling for age, sex, marital status, income, and education. Compared to African Americans, Caribbean Blacks face 34% lower odds of any mental health disorder during their lifetime and 23% lower odds of any mental health disorder during the previous year. When looking at specific types of mental disorders, a similar pattern emerges showing lower odds of mental health disorders for Caribbean Blacks compared to African Americans. For example, compared to African Americans, Caribbean Blacks experience 28% and 27% lower odds of lifetime and 12-month anxiety disorders, respectively. Caribbean Blacks are also less likely to suffer from substance use disorders. The odds of reporting a lifetime substance use disorder is 53% lower for Caribbean Blacks than it for African Americans. For Caribbean Blacks, the odds of experiencing a substance use disorder in the past 12 months are 54% lower than their African American counterparts. Thus, findings in Table 2 show support for the first hypothesis, which predicts that Caribbean Blacks will have significantly better mental health outcomes when compared to African Americans.

Table 3 shows results from regression models estimating mental health disorders among Caribbean Black and African American respondents stratified by generational status (1<sup>st</sup> generation, 1.5 generation, and 2<sup>nd</sup> generation and beyond). The odds that first generation Caribbean Blacks report any mental health disorders are 49% (lifetime) and 31% (12-month) lower than African Americans. When compared to African Americans, 1<sup>st</sup> generation Caribbean Blacks are significantly less likely to suffer from lifetime and 12-month anxiety disorders as well as lifetime and 12-month substance use disorders. These results are consistent with the immigrant health paradox, showing a mental health advantage for Caribbean Blacks born outside of the U.S.

While regression results for first generation Caribbean Blacks and African Americans show the starkest disparities in mental health outcomes, the differences in prevalence of mental health disorders among 1.5 generation Caribbean Blacks and African Americans as well as 2<sup>nd</sup>

generation Caribbean Blacks and African Americans are not as pronounced. Moreover, differences in the prevalence of mental health disorders between Caribbean Blacks and African Americans appear to decline monotonically as time in the U.S. increases. For 1.5 generation Caribbean Blacks, the odds of reporting a lifetime mental health disorder are 32% lower than African Americans. However, for 2<sup>nd</sup> generation Caribbean Blacks the odds of reporting a lifetime mental health disorder do not significantly differ compared to African Americans.

When examining specific types of mental disorders, I note similar trends across generational statuses with respondents who have lived in the U.S. longer exhibiting the worst outcomes. For example, 1.5 generation Caribbean Blacks face 37% lower odds of experiencing an anxiety disorder over their lifetimes compared to African Americans. When restricting these comparisons to  $2^{nd}$  generation Caribbean Blacks, the odds of suffering from a lifetime anxiety disorder is only 7% lower than African Americans. These racial/ethnic differences in anxiety disorders fail to reach statistical significance (p < 0.05). Similarly, 1<sup>st</sup> generation Caribbean Blacks, the odds of suffering Americans. For 1.5 generation Caribbean Blacks, the odds of reporting a lifetime mood disorder are 33% lower than African Americans; however, the odds are not statistically significantly significant. Interestingly,  $2^{nd}$  generation Caribbean Blacks face 39% greater odds of a lifetime mood disorder compared to African Americans. Findings from Table 3 show that the mental health advantage for Caribbean Blacks gradually decreases with time in the U.S., providing support for the  $2^{nd}$  study hypothesis.

Figures 1 and 2 show the distribution of mental health disorders among African Americans and Caribbean Blacks by skin tone. The distribution of lifetime and 12-month mental health disorders varies by race/ethnicity. Among African Americans, the distribution of lifetime and 12-month mental health disorders resembles a U-shaped curve with the highest prevalence among very light brown and very dark brown respondents. Nearly 41% of African Americans with very light brown skin report a lifetime mental health disorder and 22% of very light brown respondents report a 12-month disorder, representing the group with the highest prevalence of disorders. African Americans with very dark brown complexions are the group with the secondhighest prevalence of lifetime (34%) and 12-month (18%) mental health disorders.

Despite the clear patterning of mental health disorders by skin tone among African American respondents, the distribution among Caribbean Blacks does not form a distinctive pattern. For Caribbean Blacks with very light brown, medium brown, and very dark brown skin tones, the prevalence of lifetime mental health disorders hovers around 23%. The prevalence of 12-month mental health disorders among Caribbean Blacks with very light brown and medium brown skin tones is 12%, while those with dark brown and very dark brown complexions have a prevalence of 11%.

Findings from Table 4 and Table 5 depict associations between skin tone and mental health disorders among African Americans (Table 4) and Caribbean Blacks (Table 5) controlling for age, sex, marital status, income, and education. In general, African Americans with very light brown skin tones experience significantly more mental health disorders than African Americans with medium brown skin tone. African Americans with very light complexions have 48% higher odds of suffering from a lifetime disorder (p<0.05) and 46% higher odds of reporting a 12-month disorder (p<0.10). This stands in contrast to African Americans with very dark skin, who do not report significantly more mental disorders of any type than African Americans with medium brown skin. For example, the odds of reporting any mental disorder over their lifetimes are 48%

greater for light skin African Americans compared to African Americans with medium brown skin. Results for other lifetime mental health disorders indicate that African American respondents with the lightest skin tones may also have higher odds of for other types of lifetime mental health disorders although these associations are not statistically significant (p < 0.05). The odds of reporting lifetime mental health disorders does not differ among African Americans with very dark brown complexions and those with medium complexions.

When considering 12-month disorders, I find similar trends whereby African Americans with very light skin have the greatest likelihood of experiencing mental disorders compared to African Americans with medium skin tones. For example, the odds of reporting any mental health disorder in the past 12 months are 46% greater for African Americans with very light brown skin compared to African Americans with medium skin tones. Furthermore, African American respondents with the lightest complexions are 54% more likely than those with medium brown skin tones to experience symptoms of an anxiety disorder sometime in the previous 12 months (p<0.10).

Among Caribbean Blacks, there does not appear to be a clear association between skin tone and mental health disorders. The odds of reporting a lifetime mental health disorder does not significantly differ for Caribbean Blacks with different skin tones. Although there are no statistically significant associations (p < 0.05) between skin tone and lifetime mental health disorders, there is a marginal association (p<0.10) between skin tone and 12-month mood disorders. Caribbean Blacks with dark brown skin tones are 47% less likely than Caribbean Blacks with medium skin tones to report a 12-month mood disorder. This finding suggests that

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Caribbean Blacks with medium brown complexions may be more likely than those with dark brown complexions to suffer from a mental health disorder in the past 12 months.

Tables 6 and 7 display regression results predicting mental health outcomes by skin tone among African Americans and Caribbean Blacks while additionally controlling for generational status. Generally, the magnitude of the associations between mental health disorders and skin tone change with the inclusion of generational status. For African Americans, respondents with the lightest skin tone have the highest odds of reporting any type of mental disorder, either over their lifetimes or within the previous 12-month time period. African American respondents with very light brown complexions 48% more likely to report a lifetime disorder compared to African Americans with medium skin tones. African Americans with very light brown complexions are also 46% more likely to report a 12-month disorder and 54% more likely to report a 12-month anxiety disorder compared to those with medium skin tones. However, these associations are marginally significant (p < 0.10).

Results from tables 7 suggest there is no significant association (p<0.05) between skin tone and mental health outcomes for Caribbean Blacks. The odds of reporting a lifetime mental health disorder or a 12-month mental health disorder do not differ based on skin tone for Caribbean Blacks even after considering generational status (p<0.05). However, the association between skin tone and 12-month mood disorders for Caribbean Blacks with dark brown and medium brown complexions remains marginally significant (p<0.10). Compared to Caribbean Blacks with medium brown skin, Caribbean Blacks with dark brown skin face 47% lower odds of having a mood disorder within the previous 12 months. Furthermore, the strength of the associations between mental health disorders and skin tone among Caribbean Blacks decreases once generational status is included; however, these associations remain insignificant (p<0.05). Once generational status is considered, Caribbean Blacks with very light brown skin tones become 17% less likely to report lifetime mental health disorders (previously 8% less likely). These findings provide little support for the fourth study hypothesis, which asserts that time in the U.S. will explain some of the associations across immigrant status.

#### Discussion

This study aimed to assess the relationship between ethnicity, skin color, and several important mental health outcomes using a nationally representative sample of African Americans and Caribbean Blacks. I go beyond what has been previously shown in the existing literature regarding the differences in the association between ethnicity and mental health among African Americans and Caribbean Blacks (Williams et al. 2007) by specifically examining if the distribution of mental health across skin color is significantly different for Caribbean Blacks compared to African Americans. To my knowledge, this is the first study to investigate if and how the association between skin color and any type of health varies for Caribbean Blacks compared to African Americans. Thus, this study contributes to the small but growing literature that seeks to examine key differences in population health disparities among key Black subpopulations. I argue that findings from studies like this one are essential for investigators to provide a more complete understanding of how racial inequalities impact the lives of Black men and women in the United States from a number of diverse backgrounds, experiences, and perspectives.

Specifically, using logistic regression models, I tested the following study hypotheses: (1) Caribbean Blacks will have significantly better mental health outcomes compared to African Americans; (2) the gap in mental health outcomes between African Americans and Caribbean Blacks will decrease with time spent living in the U.S.; (3) the association between skin tone and mental health will be significantly more pronounced for African Americans compared to Caribbean Blacks; and (4) disparities in the association between skin tone and mental health across race/ethnicity will be partially explained by accounting for time in the U.S. The study results found support for hypotheses one through three and limited support for the fourth hypothesis. I will address these research findings in more detail in the following paragraphs.

By and large, Caribbean Black NSAL respondents experience better mental health outcomes than their African American counterparts. This is true for general measures of mental health as well as more specific psychological outcomes, such as mood, anxiety, and substance disorders. While Caribbean Black respondents have a general mental health advantage over African Americans, this advantage appears to diminish with time spent in the U.S. I find that 1<sup>st</sup> generation Caribbean Blacks exhibit the best mental health outcomes when compared to African Americans, followed by members of the 1.5 generation, and finally those who have spent the longest amount of time living in the U.S. (2<sup>nd</sup> generation). For 2<sup>nd</sup> generation Caribbean Blacks, the mental health advantage completely disappears and for some outcomes (lifetime mood disorders) becomes a mental health disadvantage. These findings provide support for the immigrant health paradox, which suggests that immigrants benefit from a health advantage that dissipates with length of residence in the U.S (Abraído-Lanza et al. 2005; Giuntella 2016).

To date, most empirical studies assessing the immigrant health paradox focus solely on Latino immigrants (Abraído-Lanza et al. 2005; Buekens et al. 2000; Hamilton, Teitler, et al. 2011). However, the findings in this paper are consistent with other empirical studies examining mental health among African Americans and Caribbean Blacks (Williams et al. 2007), which find that Caribbean Black immigrants benefit from an initial mental health advantage over African Americans that disappears with time in the U.S. Similar to the results in the current paper, Williams et al. (2007) found that 2<sup>nd</sup> generation Caribbean Blacks are more likely than their 1<sup>st</sup> generation counterparts to suffer from substance use disorders and lifetime mental health disorders. Williams also found significant differences between 3<sup>rd</sup> generation Caribbean Blacks and 2<sup>nd</sup> generation Caribbean Blacks, which suggest further mental health declines across generations. However, the current analysis revealed further disparities among Caribbean Blacks—1.5 generation immigrants had higher odds of reporting mental health disorders than their 1<sup>st</sup> generation counterparts. Scholars have largely attributed these variances in mental health outcomes across generations to stress associated with acculturation and resettlement, arguing that the mental health advantage enjoyed by recent immigrants (and its eventual decline) can be explained by lost social ties, changing family dynamics, and worsening health behaviors as after migrating to a new country (Salas-Wright et al. 2014). Thus, we would expect that as Caribbean Blacks become more aligned with the cultural and social context found within the United States, their mental health would worsen and become similarly aligned with that of native-born Blacks. This explanation is likely to explain some of the disparity in mental health outcomes between Caribbean Blacks and African Americans; however, Caribbean Blacks' mental health advantage may also follow from differences in the way that they formulate and socially construct key aspects of their racial identities.

Caribbean Blacks' propensity to characterize their racial/ethnic identities by emphasizing ties to their specific home countries or the Caribbean, in general (i.e. West Indian, Jamaican, Trinidadian) may buffer them from the adverse effects of the negative portrayals and persistent stereotypes of Blacks in America. This type of racial/ethnic identification among Caribbean Blacks might also explain the decline in mental health outcomes over time as well. Although Caribbean Black immigrants initially retain a strong attachment to their racial/ethnic group of origin upon arrival in the U.S., research suggests that the longer Caribbean Blacks reside in the U.S., the more likely they are to align themselves with African Americans (Benson 2006; Waters 1994). Further research is needed to test the potential relationship between racial identity among Caribbean Blacks and mental health outcomes. Specifically, scholars should analyze if Caribbean Blacks with strong ties to their racial/ethnic group have lower rates of depression, anxiety, substance use, and general mental health disorders when compared to Caribbean Blacks who identify closely with African Americans.

Regression results also revealed a significant relationship between skin tone and mental health outcomes among NSAL respondents; however, this association only held true for African Americans but not Caribbean Blacks. For African Americans, those with the *lightest* complexions had the highest odds of experiencing a mental health disorder. These relationships were strongest when comparing respondents with very light brown skin to those with medium brown skin for general lifetime disorders, 12-month substance use, and general 12-month disorders. These findings are a departure from past empirical studies focusing on skin tone and physical health among African Americans (Cobb et al. 2016; Hargrove 2018b). Using data from the Nashville Stress and Health Study (NSHS), Cobb et al. (2016) found that light-skinned African Americans had lower levels of allostatic load when compared to their dark-skinned counterparts. Furthermore, Cobb et al. found no significant differences between African Americans with light skin tones and those with medium skin tones. Similarly, Hargrove (2018b) found that African American women with darker complexions in the Coronary Artery Risk

Development in Young Adults (CARDIA) had higher cumulative biological risk scores (a second-hand indicator of overall allostatic load) when compared to African American women with lighter complexions.

The reason that the findings in the present study deviate from those of Cobb et al (2016) and Hargrove (2018b) might stem from key methodological differences across datasets. Currently, there are few datasets that include skin tone measures and even fewer that include both skin tone as well as health outcomes. Neither the Cobb (2016) or Hargrove (2018) papers rely on nationally representative data to arrive at their conclusions; instead, both incorporate data collected from one locale (Cobb 2016) or four distinct metropolitan areas (Hargrove 2018b). As a result, their analyses may not be generalizable to the broader African American population, many of whom live in rural areas particularly within the Southeastern portion of the U.S. This is especially problematic since low-income African Americans have been shown to have a health advantage compared to their White counterparts in rural as opposed to urban locales (Geronimus, Bound, and Colen 2011). Given the increasing evidence that skin tone does indeed play an important role in health disparities, it is important to develop updated data sources that include rigorous measures of skin tone and indicators of physical and mental health status among a diverse sample of Black respondents.

The current study findings also differ from past work on skin tone and mental health among African Americans based on the same NSAL data (Monk 2015), that find no association between interviewer-rated skin tone and mental health. This dissimilarity can likely be attributed differences in how the outcome of interest was captured. While this study uses multiple outcome measures that are based on specific DSM IV diagnoses designed to detect pathopsychological symptomology, Monk's (2015) analyses relies on a single-item measure of self-rated mental health, which asks respondents to rate their mental health on a scale of 1-5 in addition to a dichotomous self-reported measure of sadness within the past seven days. Although single-item measures of self-rated mental health have proven to be adequate indicators of subjective emotional well-being (Ahmad et al. 2014), they might underestimate the prevalence of mental illness (Ruthig, Chipperfield, and Payne 2011). For example, a recent empirical study on the applicability of single-item measures of mental health disorder rated their mental health as good, very good, or excellent (McAlpine, McCreedy, and Alang 2018). Furthermore, scholars have argued that single-item measures of mental health are not as precise as multi-item measures (Fleishman and Zuvekas 2007).

The associations between light skin tone and pathopsychological symptomology in this study may be suggestive of internalized racism among African Americans. Despite the relationship between lighter skin among African Americans and positive life outcomes such as hiring preference, educational attainment, occupation, and income (Keith and Herring 1991; Wade, Romano, and Blue 2004), research has shown that African Americans with the lightest and darkest complexions report the most intragroup discrimination compared to those with medium skin tones (Monk 2015). These patterns are reflective of internalized biases within the African American community that are rooted in chattel slavery and the divisions that slave owners created and perpetuated among African Americans (Russell, Wilson, and Hall 1993). Research suggests that these intragroup divisions are likely to have a larger impact on mental health as opposed to socioeconomic attainment (Uzogara and Jackson 2016). Alternately, the

association between very light brown skin and mental health disorders may be attributable to other psychological processes related to Black authenticity (i.e. what is considered "real" Blackness) (Coard, Breland, and Raskin 2001; Hunter 2005; Nguyen and Anthony 2014). In sum, the inconsistencies between the findings from the current study and those of previous studies (Cobb et al. 2016; Hargrove 2018b; Monk 2015) suggest that the relationship between skin tone and mental health among African Americans is more complex than originally assumed. Additional empirical work is needed to further parse out the relationship between skin tone and a wide variety of health outcomes for African Americans as well as other Black subpopulations, such as Caribbean Blacks.

In the current study, there was no clear significant association between skin tone and mental health for Caribbean Blacks, despite finding that African Americans with lighter skin tones tend to experience worse psychological functioning. This result held true even after controlling for differential time in the U.S. To my knowledge, this is the first study to examine the relationship between skin tone and mental health among Caribbean Blacks even though variations among Black subpopulations has been identified as a crucial factor shaping Black-White health disparities in the United States (Read, Emerson, and Tarlov 2005).

There are likely to be many reasons why I failed to report an association between skin color and mental health among Caribbean, two of which I will further expand upon. First, there are few studies that include a nationally representative sample of Caribbean Blacks and to my knowledge, the NSAL is the only study with a representative sample of Caribbean Blacks *and* a measure of skin tone. However, very few Caribbean Blacks in the sample have very light brown or very dark brown complexions. Most respondents are clustered within the middle complexion

categories with few falling on either end of the distribution. As a result, there are even fewer Caribbean Black respondents with the lightest and darkest complexions who are suffering from a mental health disorder, leading to less variation in the outcomes of interest. To remedy this issue, future studies should seek to collect data from a sample of Caribbean Blacks with both the lightest and darkest skin tones so the possibility of an association between skin tone and mental health can be more fully explored.

Second, it may be that within a different social context such as the U.S., Caribbean Black respondents disregard color-based social status customs/norms prevalent in their home countries and turn to other Caribbean immigrants for social support, strengthening the sense of belonging and community among the group. There is evidence of an informal color-based hierarchy in some Caribbean countries that favors those with lighter complexions (Campbell 2017; Khan 2009; Wilder and Cain 2011). Due to proximity, Caribbean Blacks may be more likely to uphold the customs/norms associated with the color hierarchy while living in their home countries. However, after arriving in the U.S. and being faced with a number of social and economic changes, it is possible that Caribbean Blacks ignore color biases and turn inward towards other members of their racial/ethnic group in search of social support. Researchers have noted similar patterns among newly arrived Latino immigrants, who move into areas that are highly populated with members of their own racial/ethnic and benefit from stronger social ties (Viruell-Fuentes et al. 2013). More research should be conducted on social ties, skin tone, and mental health outcomes among Caribbean Blacks to further test this hypothesis.

#### Limitations

This project sought to examine disparities in mental health between African Americans and Caribbean Blacks, particularly as they relate to skin color. However, the results presented here should be interpreted in light of some important limitations. First, the data used in this analysis are cross sectional and therefore cannot (1) be used to establish a causal link between skin color and mental health among native- or foreign-born Blacks and (2) capture changes in how the relationship between skin color and mental health changes the longer individual Black immigrants remain in the U.S. This point is especially important given the study hypothesis which argues that mental health outcomes for Caribbean Blacks will change over time. Unfortunately, I know of no existing dataset that contains an adequately sized sample of Black immigrants *and* follows them repeatedly over time. This shortcoming suggests a serious need to collect nationally representative, longitudinal data on Black immigrants from different parts of the world – not just the Caribbean. Future research efforts should seek to create such datasets in order to more thoroughly understand how skin color is likely to differentially shape health across distinct Black subpopulations.

Second, the data were collected from 2001-2003 and are therefore becoming dated. Further research should be conducted with more recent data, as there are a number of historical events, cultural shift, and policy changes that may impact the experience of immigrants living in the U.S. Since these data were collected, the U.S. has suffered one of the most devastating economic upheavals of modern history. While the Great Recession caused economic turmoil for many families across the U.S., Black Americans were disproportionately affected by the downturn (Reynolds 2014). These economic changes have likely had a negative impact on mental health outcomes among African Americans and Caribbean Blacks whose housing values have declined more precipitously than similarly situated Whites (Raymond, Wang, and Immergluck 2016).In 2008, the United States also elected its first Black president, Barack Obama. While the economic downturn may have had a negative impact on mental health among Black Americans, the election of Barack Obama most likely had the opposite effect, illustrating to some that certain racial barriers had been broken. The election of Obama in 2008 and his reelection in 2012 likely had a positive impact on mental health outcomes among African Americans, who initially saw him as a representative for Black causes (Brooks 2012). However, these feelings of optimism might have been relatively short-lived due to the recent amplification of White nationalism and far-right ideology in the era of Donald Trump (Giroux 2017).

Finally, this study relies on an interviewer-reported measure of skin tone. Interviewerrated measures of skin tone are good indicators of an individual's daily lived experiences within a society and is may be a good estimate for exposure to discrimination (Adams, Kurtz-Costes, and Hoffman 2016). However, it does not provide any insight into how respondent's view themselves. Using a self-reported skin tone measure provides the best estimate of how respondents perceive themselves compared to other Blacks and may provide a better understanding of the respondent's view of their own social status (Monk 2015). Perceived social status is important for mental health outcomes because lower perceived social status has been linked to adverse health outcomes (Marmot 2004). Given this, it is possible that using a selfreported measure of skin tone can change the patterning of the results reported in this paper.

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Despite these limitations, this study highlights important disparities among Black subpopulations. As Black immigration to the U.S. continues to increase, it is vital to better our understanding of how Black immigrant health shapes health disparities in the United States. This study contributes to the existing knowledge on health disparities by examining understudied factors such as skin tone that may be contributing to both Black-White disparities in health and disparities with the Black population. I find significant associations between skin tone and mental health outcomes for African Americans but not of Caribbean Blacks. More research is needed to fully understand the impact of skin tone across Black subpopulations.

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#### Appendix: Tables and Figures

	Table 1. Descriptive Sample Characteristics									
		Total Sample		A	frican America	าท	Caribbean Black			
	Mean			Mean			Mean			
	(or %)	Median	SD	(or %)	Median	SD	(or %)	Median	SD	
12-Month Prevalence of Disorders										
Any mood	5.72	-	-	6.04	-	-	4.93	-	-	
Any anxiety	10.19	-	-	11.20	-	-	7.69	-	-	
Any substance abuse	2.52	-	-	3.01	-	-	1.31	-	-	
Any disorder	14.86	-	-	16.15	-	-	11.68	-	-	
Lifetime Prevalence of Disorders										
Any mood	10.86	-	-	11.38	-	-	9.58	-	-	
Any anxiety	18.11	-	-	19.72	-	-	14.15	-	-	
Any substance abuse	9.24	-	-	10.85	-	-	5.30	-	-	
Any disorder	28.67	-	-	31.30	-	-	22.21	-	-	
Skin Color										
Very Light Brown	4.36	-	-	4.66	-	-	3.63	-	-	
Light Brown	15.57	-	-	15.92	-	-	14.73	-	-	
Medium Brown	45.84	-	-	48.31	-	-	39.77	-	-	
Dark Brown	27.81	-	-	25.70	-	-	33.02	-	-	
Very Dark Brown	6.41	-	-	5.42	-	-	8.85	-	-	
Race/Ethnicity										
African American	71.12	-	-	100.00	-	-	0.00	-	-	
Caribbean Black	28.88	-	-	0.00	-	-	100.00	-	-	
Generational Status										
1st Generation	17.98	-	-	0.00	-	-	62.26	-	-	
1.5 Generation	3.29	-	-	0.00	-	-	11.39	-	-	
2nd Generation & Beyond	78.70	-	-	100.00	-	-	26.34	-	-	
Age	42.3	40.0	16.0	42.8	41.0	16.2	40.9	39.0	15.5	
Sex										
Male	36.41	-	-	35.28	-	-	39.19	-	-	
Female	63.59	-	-	64.72	-	-	60.81	-	-	
Marital Status										
Married/Cohabitating	36.87	-	-	34.39	-	-	42.96	-	-	
Never married	33.39	-	-	33.16	-	-	33.96	-	-	
Other	29.74	-	-	32.45	-	-	23.08	-	-	
Education										
Less than HS	23.66	-	-	25.82	-	-	18.36	-	-	
HS Diploma	35.40	-	-	37.81	-	-	29.46	-	-	
Some College/Associate's	24.04	-	-	22.84	-	-	27.00	-	-	
College Degree or More	16.89	-	-	13.53	-	-	25.18	-	-	
Household Income	34538.07	27000.00	30642.57	31614.58	24000.00	28668.19	41736.47	32250.00	33988.16	
Sample Size	4,771			3,393			1,378			





	Any Mood	Any Anxiety	Any Substance	Lifetime Disorder	12-Month Mood	12-Month Anxiety	12-Month Substance	12-Month Disorder
	OR (95% Cl.)	OR (95% CI.)	OR (95% CI.)	OR (95% Cl.)	OR (95% CI.)	OR (95% CI.)	OR (95% CI.)	OR (95% Cl.)
Caribbean Black	0.87 (0.70, 1.07)	0.72 (0.60, 0.86) ***	0.47 (0.36, 0.62) ***	0.66 (0.57, 0.77) ***	0.92 (0.69, 1.23)	0.73 (0.58, 0.93) **	0.46 (0.27, 0.77) **	0.77 (0.63, 0.94) **
Age	0.98 (0.98, 0.99) ***	0.98 (0.98, 0.99) ***	0.99 (0.98, 0.99) *	0.98 (0.98, 0.99) ***	0.98 (0.97, 0.99) ***	0.98 (0.97, 0.99) ***	0.96 (0.94, 0.97) ***	0.97 (0.97, 0.98) ***
Sex								
Male	1.00	1.00	1.00	1.00	1.00	1.00 (0.0)	1.00	1.00
Female	1.59 (1.29, 1.07) ***	1.70 (1.43, 2.02) ***	0.27 (0.21, 0.33) ***	1.01 (0.88, 1.16)	1.63 (1.22, 2.19) **	1.73 (1.39, 2.17) ***	0.34 (0.23, 0.50) ***	1.32 (1.10, 1.58) **
Marital Status								
Married/Cohabitating	1.00	1.00	1.00	1.00	1.00	1.00 (0.0)	1.00	1.00
Never Married	1.18 (0.92, 1.52)	1.03 (0.84, 1.26)	0.91 (0.69, 1.20)	1.03 (0.87, 1.22)	1.22 (0.86, 1.73)	1.05 (0.81, 1.36)	1.00 (0.61, 1.66)	1.08 (0.86, 1.34)
Other*	1.60 (1.24, 2.06) ***	1.32 (1.07, 1.62) **	1.26 (0.96, 1.65) †	1.50 (1.26, 1.78) ***	2.00 (1.41, 2.85) ***	1.28 (0.98, 1.67) †	1.95 (1.14, 3.32) *	1.66 (1.32, 2.09) ***
Income	0.88 (0.79, 0.98) *	0.85 (0.78, 0.92) ***	0.77 (0.68, 0.86) ***	0.85 (0.79, 0.92) ***	0.77 (0.68, 0.89) ***	0.78 (0.70, 0.87) ***	0.72 (0.60, 0.86) ***	0.77 (0.70, 0.84) ***
Education								
Less than HS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
HS Diploma	0.97 (0.74, 1.25)	0.70 (0.57, 0.86) **	0.51 (0.39, 0.66) ***	0.70 (0.59, 0.83) ***	0.78 (0.56, 1.09)	0.69 (0.53, 0.88) **	0.34 (0.22, 0.55) ***	0.67 (0.54, 0.83) ***
Some College	0.99 (0.97, 1.25)	0.76 (0.60, 0.96) *	0.63 (0.47, 0.84) **	0.77 (0.63, 0.94) **	0.86 (0.59, 1.24)	0.71 (0.53, 0.96) *	0.34 (0.19, 0.59) ***	0.69 (0.54, 0.88) **
College Degree or More	1.25 (0.74, 1.33)	0.91 (0.70, 1.18)	0.50 (0.34, 0.73) ***	0.87 (0.70, 1.09)	0.92 (0.59, 1.43)	0.82 (0.59, 1.15)	0.40 (0.20, 0.81) *	0.78 (0.58, 1.03) †

#### Table 2. Odds Ratios Predicting Lifetime and 12-Month Mental Health Disorder by Race/Ethnicity

N=4,771

Reference groups are African American, men, married, and bachelor's degree or more

\*Includes separated, divorced and widowed

	Table 3. Odds Ratios Predicting Lifetime and 12-Month Mental Health Disorder by Generational Status									
	Any Mood	Any Anxiety	Any Substance	Lifetime Disorder	12-Month Mood	12-Month Anxiety	12-Month Substance	12-Month Disorder		
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)		
1st Generation Caribbean	0.70 (0.53, 0.92) *	0.64 (0.52, 0.80) ***	0.18 (0.11, 0.29) ***	0.51 (0.05) ***	0.86 (0.60, 1.23)	0.67 (0.50, 0.90) **	0.28 (0.13, 0.62) **	0.69 (0.54, 0.88) **		
African American	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
1.5 Generation Caribbean	0.67 (0.38, 1.17)	0.63 (0.40, 0.99) *	0.82 (0.45, 1.49)	0.68 (0.47, 0.98) *	0.80 (0.38, 1.68)	0.98 (0.58, 1.63)	0.64 (0.20, 2.10)	0.92 (0.59, 1.44)		
African American	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
2nd Generation Caribbean	1.39 (1.00, 1.91) *	0.93 (0.69, 1.25)	1.33 (0.92, 1.90)	1.11 (0.87, 1.42)	1.06 (0.65, 1.71)	0.78 (0.52, 1.17)	1.02 (0.51, 2.04)	0.91 (0.66, 1.27)		
African American	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
N=4,267										

Reference groups are African American, U.S. Native, men, married, and bachelor's degree or more

\*Includes separated, divorced and widowed

		Table 4. Odd3 Na	tios Freureting Enernie and		Disorder's among Amean A			
	Any Mood	Any Anxiety	Any Substance	Lifetime Disorder	12-Month Mood	12-Month Anxiety	12-Month Substance	12-Month Disorder
	00 (05)	00 (05)	00 (05)	00 (05)	00 (05)	00 (05)	00 (05)	0.0 (0.5)
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)
Skin Color								
Very Light Brown	1.32 (0.84, 2.09)	1.32 (0.90, 1.94)	1.13 (0.65, 1.95)	1.48 (1.05, 2.08) *	1.29 (0.70, 2.38)	1.54 (0.98, 2.42) †	1.01 (0.35, 2.90)	1.46 (0.97, 2.20) †
Light Brown	0.89 (0.65, 1.22)	0.90 (0.70, 1.16)	0.98 (0.70, 1.36)	0.94 (0.75, 1.16)	0.88 (0.57, 1.35)	0.85 (0.62, 1.18)	1.45 (0.84, 2.50)	0.93 (0.71, 1.23)
Medium Brown	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Dark Brown	0.89 (0.67, 1.16)	0.99 (0.80, 1.23)	0.87 (0.66, 1.15)	0.98 (0.82, 1.18)	0.97 (0.68, 1.40)	1.02 (0.77, 1.33)	1.16 (0.71, 1.89)	1.08 (0.86, 1.37)
Very Dark Brown	1.17 (0.73, 1.87)	1.01 (0.67, 1.50)	1.07 (0.67, 1.72)	1.09 (0.78, 1.52)	1.52 (0.85, 2.71)	1.13 (0.69, 1.84)	0.53 (0.16, 1.74)	1.27 (0.84, 1.91)
Age	0.98 (0.97, 0.99) ***	0.98 (0.97, 0.99) ***	0.99 (0.98, 1.00) †	0.98 (0.98, 0.99) ***	0.97 (0.96, 0.99) ***	0.98 (0.97, 0.99) ***	0.96 (0.94, 0.98) ***	0.97 (0.96, 0.98) ***
Sex								
Male	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Female	1.59 (1.23, 2.05) ***	1.79 (1.46, 2.19) ***	0.24 (0.19, 0.31) ***	0.96 (0.82, 1.13)	1.63 (1.15, 2.31) **	1.75 (1.35, 2.28) ***	0.32 (0.21, 0.50) ***	1.28 (1.04, 1.58) *
Marital Status								
Married/Cohabitating	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Never Married	1.09 (0.80, 1.47)	0.90 (0.71, 0.93)	0.86 (0.63, 1.18)	0.92 (0.75, 1.13)	1.21 (1.42, 3.26)	0.96 (1.02, 1.88)	0.81 (0.47, 1.41)	0.98 (0.76, 1.28)
Other**	1.64 (1.22, 2.22) **	1.36 (1.08, 1.73) *	1.26 (0.94, 1.70)	1.52 (1.24, 1.85) ***	2.15 (0.80, 1.84) ***	1.39 (0.71, 1.30) *	1.78 (1.00, 3.14) *	1.74 (1.34, 2.26) ***
Income	0.90 (0.79, 1.02)	0.84 (0.76, 0.93) **	0.73 (0.65, 0.83) ***	0.84 (0.77, 0.92) ***	0.79 (0.68, 0.93) **	0.79 (0.69, 0.89) ***	0.69 (0.56, 0.84) ***	0.77 (0.69, 0.86) ***
Education								
Less than HS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
HS Diploma	0.87 (0.66, 1.16)	0.62 (0.49, 0.77) ***	0.49 (0.37, 0.65) ***	0.63 (0.51, 0.76) ***	0.72 (0.50, 1.04) †	0.63 (0.48, 0.84) **	0.35 (0.21, 0.57) ***	0.62 (0.49, 0.79) ***
Some College	0.79 (0.56, 1.11)	0.73 (0.56, 0.95) *	0.66 (0.47, 0.91) *	0.72 (0.57, 0.91) **	0.65 (0.41, 1.02) †	0.63 (0.45, 0.88) **	0.37 (0.20, 0.68) **	0.59 (0.44, 0.79) ***
College Degree or More	1.17 (0.80, 1.71)	0.82 (0.60, 1.12)	0.37 (0.23, 0.60) ***	0.79 (0.60, 1.04) +	0.89 (0.53, 1.49)	0.76 (0.51, 1.13)	0.30 (0.12, 0.74) **	0.71 (0.50, 1.01) †

 Table 4. Odds Ratios Predicting Lifetime and 12-Month Mentalh Health Disorders among African Americans

 Any Anviety
 Any Substance
 12-Month Mond
 12-Month Anviety
 12-Month Substance
 12-Month Disorder

N=3,393

\*\*Includes separated, divorced and widowed

#### Table 5. Odds Ratios Predicting Lifetime and 12-Month Mental Health Disorders among Caribbean Blacks

	Any Mood	Any Anxiety	Any Substance	Lifetime Disorder	12-Month Mood	12-Month Anxiety	12-Month Substance	12-Month Disorder
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)
Skin Color								
Very Light Brown	0.90 (0.34, 2.40)	0.95 (0.41, 2.20)	1.32 (0.38, 4.60)	0.92 (0.45, 1.86)	0.56 (0.13, 2.48)	0.98 (0.33, 2.92)	2.30 (0.25, 20.83)	0.93 (0.37, 2.31)
Light Brown	1.30 (0.78, 2.17)	1.35 (0.87, 2.11)	0.80 (0.38, 1.68)	1.16 (0.79, 1.69)	0.98 (0.49, 1.96)	1.44 (0.82, 2.54)	1.99 (0.56, 7.04)	1.15 (0.71, 1.87)
Medium Brown	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Dark Brown	0.84 (0.54, 1.30)	0.97 (0.67, 1.40)	0.72 (0.40, 1.30)	0.80 (0.58, 1.09)	0.53 (0.28, 1.02) †	1.10 (0.68, 1.77)	0.60 (0.14, 2.48)	0.94 (0.62, 1.40)
Very Dark Brown	0.93 (0.46, 1.91)	1.06 (0.59, 1.92)	0.79 (0.33, 1.87)	1.01 (0.63, 1.64)	1.14 (0.48, 2.68)	0.75 (0.31, 1.84)	2.02 (0.47, 8.73)	1.01 (0.53, 1.93)
Age	0.99 (0.98, 1.01)	0.99 (0.98, 1.00)	0.98 (0.96, 1.00) +	0.98 (0.97, 0.99) **	0.99 (0.97, 1.01)	0.99 (0.97, 1.00) †	0.92 (0.87, 0.98) **	0.98 (0.96, 0.99) **
Sex								
Male	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Female	1.51 (1.00, 2.26) *	1.42 (1.01, 1.98) *	0.35 (0.21, 0.58) ***	1.13 (0.85, 1.48)	1.67 (0.95, 2.94) †	1.62 (1.03, 2.53) *	0.42 (0.16, 1.15) †	1.45 (1.00, 2.10) *
Marital Status								
Married/Cohabitating	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Never Married	1.48 (0.82, 2.31) †	1.52 (1.04, 2.23) *	1.01 (0.55, 1.85)	1.38 (1.00, 1.91) †	1.28 (0.68, 2.42)	1.39 (0.85, 2.27)	2.15 (0.53, 8.72)	1.38 (0.91, 2.11)
Other**	1.38 (0.82, 2.31)	1.07 (0.68, 1.69)	1.13 (0.56, 2.26)	1.33 (0.92, 1.92)	1.57 (0.78, 3.16)	0.82 (0.44, 1.53)	3.08 (0.58, 16.54)	1.34 (0.82, 2.18)
Income	0.86 (0.70, 1.05)	0.85 (0.71, 1.01) †	0.90 (0.68, 1.18)	0.85 (0.73, 0.99) *	0.74 (0.58, 0.94) *	0.76 (0.61, 0.94)	0.87 (0.53, 1.43)	0.76 (0.63, 0.91) **
Education								
Less than HS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
HS Diploma	1.49 (0.80, 2.79)	1.32 (0.82, 2.14)	0.57 (0.30, 1.20)	1.16 (0.78, 1.73)	1.09 (0.49, 2.46)	1.10 (0.59, 2.05)	0.35 (0.09, 1.35)	1.00 (0.60, 1.68)
Some College	1.92 (1.03, 3.59) *	1.01 (0.61, 1.69)	0.69 (0.23, 1.05) †	0.99 (0.65, 1.51)	1.73 (0.79, 3.80)	1.20 (0.64, 2.27)	0.25 (0.06, 1.10) †	1.18 (0.70, 1.99)
College Degree or More	1.82 (0.94, 3.53) †	1.41 (0.84, 2.37)	1.15 (0.42, 1.79)	1.22 (0.79, 1.89)	1.21 (0.50, 2.92)	1.24 (0.63, 2.44)	0.83 (0.21, 3.26)	1.11 (0.63, 1.96)

N=1,378

\*\*Includes separated, divorced and widowed

	Table of our share of the and 12-month Mental Health Disorders allong Aircan Americans										
	Any Mood	Any Anxiety	Any Substance	Lifetime Disorder	12-Month Mood	12-Month Anxiety	12-Month Substance	12-Month Disorder			
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)			
Skin Color											
Very Light Brown	1.32 (0.84, 2.09)	1.32 (0.90, 1.94)	1.13 (0.65, 1.95)	1.48 (1.05, 2.08) *	1.29 (0.70, 2.38)	1.54 (0.98, 2.42) +	1.01 (0.35, 2.90)	1.46 (0.97, 2.20) +			
Light Brown	0.89 (0.65, 1.22)	0.90 (0.70, 1.16)	0.98 (0.70, 1.36)	0.94 (0.75, 1.16)	0.88 (0.57, 1.35)	0.85 (0.62, 1.18)	1.45 (0.84, 2.50)	0.93 (0.71, 1.23)			
Medium Brown	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Dark Brown	0.89 (0.67, 1.16)	0.99 (0.80, 1.23)	0.87 (0.66, 1.15)	0.98 (0.82, 1.18)	0.97 (0.68, 1.40)	1.02 (0.77, 1.33)	1.16 (0.71, 1.89)	1.08 (0.86, 1.37)			
Very Dark Brown	1.17 (0.73, 1.87)	1.01 (0.67, 1.50)	1.07 (0.67, 1.72)	1.09 (0.78, 1.52)	1.52 (0.85, 2.71)	1.13 (0.69, 1.84)	0.53 (0.16, 1.74)	1.27 (0.84, 1.91)			
Age	0.98 (0.97, 0.99) ***	0.98 (0.97, 0.99) ***	0.99 (0.98, 1.00) +	0.98 (0.98, 0.99) ***	0.97 (0.96, 0.99) ***	0.98 (0.97, 0.99) ***	0.96 (0.94, 0.98) ***	0.97 (0.96, 0.98) ***			
Sex											
Male	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Female	1.59 (1.23, 2.05) ***	1.79 (1.46, 2.19) ***	0.24 (0.19, 0.31) ***	0.96 (0.82, 1.13)	1.63 (1.15, 2.31) **	1.75 (1.35, 2.28) ***	0.32 (0.21, 0.50) ***	1.28 (1.04, 1.58) *			
Marital Status											
Married/Cohabitating	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Never Married	1.09 (0.80, 1.47)	0.90 (0.71, 0.93)	0.86 (0.63, 1.18)	0.92 (0.75, 1.13)	1.21 (1.42, 3.26)	0.96 (1.02, 1.88)	0.81 (0.47, 1.41)	0.98 (0.76, 1.28)			
Other**	1.64 (1.22, 2.22) **	1.36 (1.08, 1.73) *	1.26 (0.94, 1.70)	1.52 (1.24, 1.85) ***	2.15 (0.80, 1.84) ***	1.39 (0.71, 1.30) *	1.78 (1.00, 3.14) *	1.74 (1.34, 2.26) ***			
Income	0.90 (0.79, 1.02)	0.84 (0.76, 0.93) **	0.73 (0.65, 0.83) ***	0.84 (0.77, 0.92) ***	0.79 (0.68, 0.93) **	0.79 (0.69, 0.89) ***	0.69 (0.56, 0.84) ***	0.77 (0.69, 0.86) ***			
Education											
Less than HS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
HS Diploma	0.87 (0.66, 1.16)	0.62 (0.49, 0.77) ***	0.49 (0.37, 0.65) ***	0.63 (0.51, 0.76) ***	0.72 (0.50, 1.04) †	0.63 (0.48, 0.84) **	0.35 (0.21, 0.57) ***	0.62 (0.49, 0.79) ***			
Some College	0.79 (0.56, 1.11)	0.73 (0.56, 0.95) *	0.66 (0.47, 0.91) *	0.72 (0.57, 0.91) **	0.65 (0.41, 1.02) †	0.63 (0.45, 0.88) **	0.37 (0.20, 0.68) **	0.59 (0.44, 0.79) ***			
College Degree or More	1.17 (0.80, 1.71)	0.82 (0.60, 1.12)	0.37 (0.23, 0.60) ***	0.79 (0.60, 1.04) †	0.89 (0.53, 1.49)	0.76 (0.51, 1.13)	0.30 (0.12, 0.74) **	0.71 (0.50, 1.01) †			
NL 2 202											

#### Table 6. Odds Ratios Predicting Lifetime and 12-Month Mental Health Disorders among African Americans

N=3,393

\*\*Includes separated, divorced and widowed

## Table 7. Odds Ratios Predicting Lifetime and 12-Month Mental Health Disorders among Caribbean Blacks by Generational Status Any Anxiety Any Substance Lifetime Disorder 12-Month Mood 12-Month Anxiety

_	Any Mood	Any Anxiety	Any Substance	Lifetime Disorder	12-Month Mood	12-Month Anxiety	12-Month Substance	12-Month Disorder
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)
Skin Color								
Very Light Brown	0.80 (0.30, 2.14)	0.93 (0.40, 2.17)	1.20 (0.34, 4.25)	0.83 (0.41, 1.72)	0.55 (0.12, 2.43)	1.02 (0.24, 3.05)	2.25 (0.25, 20.60)	0.93 (0.37, 2.32)
Light Brown	1.26 (0.75, 2.12)	1.38 (0.89, 2.16)	0.97 (0.45, 2.09)	1.17 (0.80, 1.72)	0.97 (0.48, 1.94)	1.47 (0.83, 2.59)	2.29 (0.64, 8.26)	1.16 (0.71, 1.90)
Medium Brown	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Dark Brown	0.88 (0.56, 1.37)	1.00 (0.69, 1.46)	0.91 (0.50, 1.66)	0.85 (0.62, 1.17)	0.53 (0.28, 1.02) +	1.12 (0.69, 1.81)	0.64 (0.15, 2.71)	0.95 (0.63, 1.43)
Very Dark Brown	0.98 (0.48, 2.03)	1.10 (0.60, 1.99)	0.87 (0.34, 2.23)	1.03 (0.63, 1.70)	1.13 (0.48, 2.68)	0.77 (0.32, 1.90)	1.37 (0.25, 7.42)	0.93 (0.48, 1.81)
Age	1.00 (0.98, 1.01)	0.99 (0.98, 1.00)	0.99 (0.97, 1.01)	0.99 (0.98, 0.99) *	0.99 (0.97, 1.01)	0.99 (0.97, 1.00)	0.93 (0.03) *	0.98 (0.97, 0.99) **
Sex								
Male	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Female	1.58 (1.05, 2.38) *	1.41 (1.00, 1.97) *	0.31 (0.18, 0.53) ***	1.13 (0.85, 1.50)	1.68 (0.95, 2.95) +	1.58 (1.00, 2.48) *	0.32 (0.11, 0.91) *	1.40 (0.97, 2.03) †
Marital Status								
Married/Cohabitating	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Other**	1.39 (0.82, 2.33)	1.10 (0.70, 1.73)	1.18 (0.57, 2.41)	1.36 (0.94, 1.97)	1.58 (0.78, 3.17)	0.83 (0.44, 1.56)	3.38 (0.62, 18.41)	1.36 (0.83, 2.22)
Never Married	1.39 (0.87, 2.22)	1.54 (1.04, 2.26) *	0.74 (0.39, 1.38)	1.30 (0.94, 1.82)	1.28 (0.68, 2.42)	1.44 (0.87, 2.36)	1.79 (0.43, 7.40)	1.39 (0.91, 2.13)
Income	0.85 (0.69, 1.04)	0.85 (0.72, 1.02) +	0.83 (0.63, 1.09)	0.84 (0.72, 0.98) *	0.75 (0.58, 0.95) *	0.76 (0.62, 0.94) *	0.84 (0.51, 1.38)	0.76 (0.63, 0.91) **
Education								
Less than HS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
HS Diploma	1.53 (0.81, 2.91)	1.30 (0.81, 2.11)	0.43 (0.21, 0.89) *	1.13 (0.75, 1.70)	1.08 (0.48, 2.43)	1.09 (0.58, 2.04)	0.30 (0.08, 1.19) +	0.99 (0.59, 1.67)
Some College	1.97 (1.04, 3.76) *	0.99 (0.59, 1.65)	0.34 (0.16, 0.75) **	0.94 (0.62, 1.45)	1.72 (0.78, 3.79)	1.17 (0.62, 2.23)	0.23 (0.05, 1.02) +	1.15 (0.68, 1.95)
College Degree or More	1.78 (0.91, 3.51) †	1.32 (0.78, 2.24)	0.55 (0.25, 1.19)	1.09 (0.70, 1.71)	1.19 (0.49, 2.87)	1.17 (0.59, 2.33)	0.58 (0.14, 2.48)	1.01 (0.57, 1.80)
Age at Time of Immigration								
2nd Generation and Beyona	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.5 Generation	0.47 (0.25, 0.90) *	0.73 (0.42, 1.24)	0.67 (0.34, 1.35)	0.62 (0.40, 0.96) *	0.78 (0.33, 1.83)	1.31 (0.69, 2.49)	0.59 (0.12, 2.91)	1.02 (0.59, 1.77)
1st Generation	0.50 (0.33, 0.75) **	0.74 (0.51, 1.07)	0.13 (0.34, 1.35) ***	0.48 (0.35, 0.65) ***	0.85 (0.48, 1.53)	0.99 (0.60, 1.63)	0.37 (0.11, 1.18) +	0.85 (0.57, 1.29)

N=1,378 \*\*Includes separated, divorced and widowed